

19980710.qrp v01\_n148.qrs.980710

Date: Fri, 10 Jul 1998 19:03:09 EDT  
From: qrp-l@Lehigh.EDU  
To: "Low Power Amateur Radio Discussion" <qrp-l@Lehigh.EDU>  
Subject: QRP-L digest 1148

QRP-L Digest 1148

Topics covered in this issue include:

- 1) [14780] Elmer 101 question  
by "C. Lamar Derk" <n3at@epix.net>
- 2) [14781] Re: Digital Camera  
by Bruce Muscolino <w6toy@erols.com>
- 3) [14782] Automorse Image  
by "Marshall Emm" <mgemm@mtechnologies.com>
- 4) [14783] Re: Digital Camera  
by "John J. McDonough" <jjmcd@tm.net>
- 5) [14784] Re: NC20 Comments  
by Thomas Isgro <kc8dgu@postoffice.worldnet.att.net>
- 6) [14785] T-Kit 1056 Rcvr  
by dave\_epps@juno.com
- 7) [14786] Rainbow Enclosure  
by dave\_epps@juno.com
- 8) [14787] RE CB to 10 M Conversion  
by Glen Reid <k5hgb@flash.net>
- 9) [14788] Ne Addition to the shack  
by "T.J. \"SKIP\" Arey N2EI" <tjarey@home.com>
- 10) [14789] 14.060 mhz xtals--scount  
by chrisfresh@juno.com
- 11) [14790] Perth Plus and Outpost Mount  
by jduffy1@ix.netcom.com
- 12) [14791] RE: Mode A and B  
by adams@chuck.dallas.sgi.com (Chuck Adams)
- 13) [14792] Zombie Badges ready  
by Paul Harden <na5n@rt66.com>
- 14) [14793] perth plus  
by RangerSF5@aol.com
- 15) [14794] Re: Perth Plus and Outpost Mount  
by Joe Smith <joey@cooldude.com>
- 16) [14795] Non QRP but Software Question  
by Ward Hill <w\_hill@ns.net>
- 17) [14796] NN1G FREQ-Mite Update  
by adams@chuck.dallas.sgi.com (Chuck Adams)
- 18) [14797] HELP w/Elmer101 Prices  
by "Wilford D. Lindsey" <70511.3041@compuserve.com>
- 19) [14798] Backpackin' Field Day '98

- by "David Ek" <ekdave@earthlink.net>
- 20) [14799] Rainbow Enclosures!!!  
by "Doug Hauff" <slmachco@fix.net>
- 21) [14800] equipment for sale.  
by "edwin a. crowell" <w5twr@rconnect.com>
- 22) [14801] RE: Mode A and B  
by Monte Stark <ku7y@dri.edu>
- 23) [14802] Re: Indoor Antenna  
by "George T. Baker" <w5yr@swbell.net>
- 24) [14803] Re: PLL chip on the GE help HT?  
by "George T. Baker" <w5yr@swbell.net>
- 25) [14804] items sold  
by "edwin a. crowell" <w5twr@rconnect.com>
- 26) [14805] equipment sold  
by "edwin a. crowell" <w5twr@rconnect.com>
- 27) [14806] Re: Perth Plus and Outpost Mount  
by Monte Stark <ku7y@dri.edu>
- 28) [14807] Special Event Station K7A and NQ7RP  
by Mark Saunders <tracker@dancris.com>
- 29) [14808] MM VIA KAYACK  
by jdenison@morelr.com (JOEL DENISON)
- 30) [14809] Close-ups with digital cameras (long, not QRP)  
by John Fletcher <johnf@innotts.co.uk>
- 31) [14810] Pixie es Tixie mods  
by "carlos garrett III" <irpilot2@pluto.skyweb.net>
- 32) [14811] note on linear and capacity hat loading  
by "L. B. Cebik" <cebik@utkx.utcc.utk.edu>
- 33) [14812] Re: QUESTION... FEEDING THE Half-SQUARE... Wire/Rope/Trees  
by "L. B. Cebik" <cebik@utkx.utcc.utk.edu>
- 34) [14813] Freq-Mite and the SW40+  
by "James Apple" <wb1dog@hotmail.com>
- 35) [14814] Digital images  
by beache@juno.com (Edward B Beach)
- 36) [14815] FS Timewave DSP 59+  
by Bruce Milne <bmilne@eznet.net>
- 37) [14816] SOLD:Elmer101 SW-40++  
by "Wilford D. Lindsey" <70511.3041@compuserve.com>
- 38) [14817] "Snake" antenna?  
by "Steve Galchutt" <n0tu@webaccess.net>
- 39) [14818] re:Digital Camera  
by David Shalita <af389@lafn.org>
- 40) [14819] Antenna Q's  
by Brad Mugleston <bmug@gw1.com>
- 41) [14820] Thanks folks  
by "T.J. \"SKIP\" Arey N2EI" <tjarey@home.com>
- 42) [14821] Microphone pre-amp design--HELP!!  
by ke4tsa@juno.com (Michael F Danchi)
- 43) [14822] Re: Digital Camera

by Zack Lau <zlau@arrl.org>  
44) [14823] Re: "Snake" antenna?  
by applitech@mcg.net (Claton Cadmus)  
45) [14824] Help w/an Alinco HT, plus ob. QRP  
by "Scott Rosenfeld [NF3I]" <ham@w3eax.umd.edu>  
46) [14825] ADDITIONAL DELTA LOOP INFORMATION  
by rhiller@sysdev.com (Rick Hiller)  
47) [14826] ELMER (looong): Re: Oops balun epistle :=(  
by Niel Skousen <skousen@srv.net>  
48) [14827] Re: "Snake" antenna?  
by Paul Erickson <paule@sfu.ca>  
49) [14828] SST  
by lya@juno.com (Lorraine Y Aubert)  
50) [14829] Re: Bee Alert\!  
by Zack Lau <zlau@arrl.org>  
51) [14830] RE: Fish Story or Know  
by "V.C. Angell" <angell@northernnet.com>  
52) [14831] Re: "Snake" antenna?  
by applitech@mcg.net (Claton Cadmus)  
53) [14832] RE: Mode A and B  
by adams@chuck.dallas.sgi.com (Chuck Adams)  
54) [14833] QST Magazine  
by DENNISMO@aol.com  
55) [14834] RE: QST Magazine  
by "Kevin Muenzler WB5RUE" <wb5rue@stic.net>  
56) [14835] re: QST Magazine...  
by DENNISMO@aol.com  
57) [14836] Need MC13022P AM Stereo Decode  
by Cayman71@aol.com  
58) [14837] balun  
by Tellefsen Bob-CNSE97 <cnse97@lmpsil02.comm.mot.com>  
59) [14838] Re: QST Magazine  
by KC5TJA <kc5tja@topaz.axisinternet.com>  
60) [14839] moving SST to 15mtrs  
by marion@montana.com  
61) [14840] Tuna Tin rig  
by Tellefsen Bob-CNSE97 <cnse97@lmpsil02.comm.mot.com>  
62) [14841] 49er to 10-9er?  
by KB0VCC/1 <kb0vcc@rocketmail.com>  
63) [14842] Re: 14.060 mhz xtals--scoource  
by Dick G0BPS <G0BPS@kanga.demon.co.uk>  
64) [14843] Web site with reviews on HF rigs and equip?  
by Dan Baldwin <baldwin@primenet.com>  
65) [14844] Re: Digital Camera  
by "Frank G3YCC" <g3ycc@g3ycc.prestel.co.uk>  
66) [14845] 49er to 10-9er?  
by "Harry T. Hurst" <hhurst@delaware.infi.net>  
67) [14846] Re: "Snake" antenna?

by W7LS <w7ls@blarg.net>  
68) [14847] A tip of the hat  
by Davewb4@aol.com  
69) [14848] Re: Microphone pre-amp design--HELP!!  
by "George T. Baker" <w5yr@swbell.net>  
70) [14849] Echo: Ten-Tec DC RX FB  
by MNHopkins@aol.com  
71) [14850] Re: PLL chip on the GE help HT?  
by "George T. Baker" <w5yr@swbell.net>  
72) [14851] FS: QRP++  
by "Jim Johnson" <km7h@gte.net>  
73) [14852] Question on rig placement  
by THE ONE AND ONLY <mitch96@pobox.com>  
74) [14853] Email dwn and/or slow at qsl.net  
by Ed Loranger <we6w@qsl.net>  
75) [14854] Elmer 101 debugging sessions  
by "Craig B. Johnson" <johns516@maroon.tc.umn.edu>  
76) [14855] Sri B/W: email Back OK!  
by Ed Loranger <we6w@qsl.net>  
77) [14856] Wilderness Radio's SST Xcvr???  
by James P Rybak <jrybak@mesa7.mesa.colorado.edu>  
78) [14857] Packing material  
by ac5ez@webtv.net (Larry B)  
79) [14858] QRP help  
by "Richard Bauer" <K5RB@worldnet.att.net>

-----  
Date: Thu, 09 Jul 1998 20:12:31 -0400  
From: "C. Lamar Derk" <n3at@epix.net>  
To: low power amateur radio discussion <qrp-1@Lehigh.EDU>  
Subject: [14780] Elmer 101 question  
Message-ID: <35A55C6F.1A90@epix.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

When I started to install the chips in their sockets on my SW40+, I discovered that one was missing. I don't know if I misplaced it, but I found a similar chip in another kit that I am working on, and thought I could use that one until I locate the missing one.

The missing chip is the op-amp NE5532. The one I found is NE5532p Does anyone out there know if these two are interchangeable? What is the meaning of the "p" on the NE5532p?

Thanks in advance for any information that can be provided.

72 de Lamar

-----  
Date: Thu, 9 Jul 1998 20:19:52 -0400 (EDT)  
From: Bruce Muscolino <w6toy@erols.com>  
To: mikemo@ibm.net  
Cc: QRP-L@Lehigh.EDU  
Subject: [14781] Re: Digital Camera  
Message-ID: <2.2.16.19980709201116.222f5386@pop.erols.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

>  
>This may sound old fashioned, but how about a decent 35mm camera and a  
>scanner?  
>  
You loose resolution using a scanner to scan prints. Having a "picture  
disk" made at the time of processing is the least expensive of the best  
routes. If you want to scan negatives you're into \$1000+++ scanners for  
transparencies that pros use.

73

-----  
Date: Thu, 9 Jul 1998 19:00:42 -0600  
From: "Marshall Emm" <mgemm@mtechnologies.com>  
To: qrp-l@Lehigh.EDU  
Subject: [14782] Automorse Image  
Message-ID: <199807100059.SAA02164@edison.chisp.net>  
MIME-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7BIT

Re earlier traffic on the subject of digital cameras, the image I was  
talking about was the Hitchcox Bros. Automorse, and the correct URL  
is :

<http://www.mtechnologies.com/n1fn/hitchcox.jpg>.

73

Marshall Emm  
N1FN/VK5FN

n1fn@MorseX.com  
Morse Express  
"Everything for the Morse Enthusiast"  
<http://www.MorseX.com>  
(303)752-3382  
--

-----  
Date: Thu, 9 Jul 1998 23:41:22 -0400  
From: "John J. McDonough" <jjmcd@tm.net>  
To: <w6toy@erols.com>, "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>  
Subject: [14783] Re: Digital Camera  
Message-ID: <199807100110.7667200@is1.tm.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Transfer-Encoding: 7bit

> From: Bruce Muscolino <w6toy@erols.com>; owner-qrp-1@Lehigh.EDU  
>  
> >  
> >This may sound old fashioned, but how about a decent 35mm camera and a  
> >scanner?  
> >  
> You loose resolution using a scanner to scan prints. Having a "picture  
> disk" made at the time of processing is the least expensive of the best  
> routes. If you want to scan negatives you're into \$1000+++ scanners for  
> transparencies that pros use.

Well, yes and no.... The scanner DOES loose resolution, but the typical picture disk is far poorer than you can get with a decent scanner. And scanners have gotten startlingly cheap lately. PhotoCD is another story - much better than any affordable scanner - but that is expensive and a long wait.

72/73 de WB8RCR  
dldleydadidah

-----  
Date: Wed, 08 Jul 1998 18:09:46 -0400  
From: Thomas Isgro <kc8dgu@postoffice.worldnet.att.net>  
To: adams@chuck.dallas.sgi.com  
Cc: Low Power Amateur Radio Discussion <qrp-1@Lehigh.EDU>  
Subject: [14784] Re: NC20 Comments

Message-ID: <35A3EE2A.7AF3@postoffice.worldnet.att.net>

MIME-Version: 1.0

Content-Type: text/plain; charset=us-ascii

Content-Transfer-Encoding: 7bit

Amen

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\*\*\*\*\*  
\*\*\*\*\*

73 de

KI8CZ

Tom Isgro

OHIO

<http://www.qsl.net/ki8cz>

10-X #68364	SCI #1479	QRP-L #945	ARS #203	ARCI #9606
C.A.T.T #2115	FIST 2360	NORCAL	ARRL	

\*\*\*\*\*  
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-----  
Date: Thu, 9 Jul 1998 18:22:00 -0700

From: dave\_epps@juno.com

To: qrp-l@Lehigh.EDU

Subject: [14785] T-Kit 1056 Rcvr

Message-ID: <19980709.182208.8814.1.dave\_epps@juno.com>

Just built this little Ten Tec rcvr kit and it performs far better than I had

expected. It is single band "but" they give you all of the components to put

it on any band 160-10 mtrs.

dave ab5pc morro bay, ca.

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Date: Thu, 9 Jul 1998 18:15:59 -0700  
From: dave\_epps@juno.com  
To: qrp-1@Lehigh.EDU  
Subject: [14786] Rainbow Enclosure  
Message-ID: <19980709.182208.8814.0.dave\_epps@juno.com>

I stopped at San Luis Machine Co. and Doug Hauff showed me the new equipment. Pretty impressive. The aluminum blocks for the R.E's were next to be machined. I now know why they are called enclosures and not boxes. The alum. blocks are machined out inside to hold the tuner. Will be a tuner built like a tank. He said they should be mailed in 2 to 3 weeks.  
dave ab5pc morro bay, ca

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Or call Juno at (800) 654-JUNO [654-5866]

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Date: Thu, 09 Jul 1998 20:28:43 -0500  
From: Glen Reid <k5hgb@flash.net>  
To: QRP-1 List <qrp-1@Lehigh.EDU>  
Subject: [14787] RE CB to 10 M Conversion  
Message-ID: <35A56E4B.FFB36CEA@flash.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=iso-8859-1  
Content-Transfer-Encoding: 8bit

Thanks for the offers to adopt this orphan, The Hy-Gain board has been claimed.

gr

--

GLEN REID  
K5FX/M BGF

Formerly K5HGB

Austin, Texas  
...in the beautiful hill country of TEXAS...

Austin QRP Club # Pi



Email: k5hgb@flash.net

-----  
Date: Thu, 09 Jul 1998 21:51:23 -0400  
From: "T.J. \"SKIP\" Arey N2EI" <tjarey@home.com>  
To: "qrp-1@Lehigh.EDU" <qrp-1@Lehigh.EDU>  
Subject: [14788] Ne Addition to the shack  
Message-ID: <35A5739B.6C66B869@home.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Just picked up an FT-301S and FV-301. My only problem is they came into my possession without any manuals.

- 1) Can anyone point me to where I might get a copy of the book for this rig?
- 2) Failing that, can anyone give me the pin diagrams for the power cord, microphone and VFO line?
- 3) I also understand there was a Fox Tango receiver modification for this rig. If anyone can point me to that too I'd be a very happy camper.

With everyone's help (And QRP-L is the most helpful place in hamdom) I may be up on QRP SSB and RTTY in just a few days.

--

+++++

T.J. "SKIP" AREY N2EI e-mail tjarey@home.com

QRP-L #1618 QRPARCI #8634 ARRL Life member

Website <http://members.home.net/tjarey>

Snail Mail: PO Box 236, Beverly, NJ 08010

Specialization is for insects! LAZARUS LONG

-----  
Date: Thu, 09 Jul 1998 22:03:26 EDT  
From: chrisfresh@juno.com

To: qrp-1@Lehigh.EDU  
Subject: [14789] 14.060 mhz xtals--sourcing  
Message-ID: <19980710.021131.5263.0.chrisfresh@juno.com>

I want to build my two Pixies for 20 meters, but need to know a good source of the xtals, Dan's Small Parts is not listing 20 M xtals in his catalog, HSC said they didn't have. Any body know a good source of qrp XTALS, especially 20 meters, though 17 would be fun, too.

72, thanks in advance  
Chris Freshwater, KB9LCK  
chrisfresh@juno.com

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Date: Thu, 9 Jul 1998 21:18:54 -0500 (CDT)  
From: jduffy1@ix.netcom.com  
To: qrp-1@Lehigh.EDU  
Subject: [14790] Perth Plus and Outpost Mount  
Message-ID: <199879221716541@ix.netcom.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii

If anyone is interested in seeing pictures of the Perth Plus on the Outpost mount and the MFJ 9420 setup that I used on Field Day, I have added them to my web page.

<http://pw2.netcom.com/~jduffy1/wb8nut.htm>

There are links to the pictures from the web page. The pictures do not appear on the web page itself.

Regards,

Duffy - WB8NUT

-----

Date: Fri, 10 Jul 1998 03:19:39 +0100  
From: adams@chuck.dallas.sgi.com (Chuck Adams)  
To: mtracy@arrl.org  
Cc: qrp-1@Lehigh.EDU  
Subject: [14791] RE: Mode A and B  
Message-ID: <199807100219.DAA02326@chuck.dallas.sgi.com>

Michael Tracy, KC1SX, said "Type B keying is preferred by some operators as a way of sending more code elements for less paddle presses, but the paddle press timing becomes more critical for characters with short sequences (N, A, etc.)".

The number of times each paddle is the same for either mode. It is the timing, i.e. the release of the paddle that is the critical element between the modes. Been there, done that..... :-)

Good writeup Michael.

dit dit

Chuck Adams K5FO Dallas,TX CP-60  
<http://reality.sgi.com/adams> adams@sgi.com

-----  
Date: Thu, 9 Jul 1998 20:25:36 -0600 (MDT)  
From: Paul Harden <na5n@rt66.com>  
To: qrp-1@Lehigh.EDU  
Subject: [14792] Zombie Badges ready  
Message-ID: <Pine.SUN.3.96.980709201904.7230A-100000@mack.rt66.com>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

ZOMBIE BADGES are now ready ...

First, this has nothing to do with the great NorCal Zombie T-shirt design contest at the last NorCal meeting. That's an independent thing. Like all Zombies, we work pretty much independent.

The Zombie Badge is printed in red and black ink on a bright goldenrod paper, 2x3.5 inches, and laminated military ID style in tough plastic with the plastic strap and alligator clip thingie for attaching to

your pocket, shirt collar, etc. It says "WARNING: NorCal QRP ZOMBIE" in bold lettering surrounding a good old fashioned skull and cross bones. At the bottom it is signed by the "High Priest of the Rite" (Jim Cates, WA6GER), the "Grand Templar" (me) and the "Official NorCal Witchess" (Sandra). They are also sequentially numbered, as it seems QRPers just have to have a number to collect. Besides, maybe at the Ft. Tuthill hamfest, we'll decide to have a short little Zombie contest on Halloween or something and numbers could come in handy :-)

The area at the bottom, with the signatures, was so designed so you could put a small label with your name and calls there if you wish. Great hamfest name badge, and I can tell you from HamCom, a great conversation starter at the local restaurants -hi.

ON THE BACK SIDE (yes, there's more) is a very official looking AREA 51 SECURITY PASS with a high tech looking thumbprint scan for Z Clearance access to Hangar 18, Bldg. 84, level 23. (Ask any UFO freak the significance of this stuff!). Your title is "Communications Specialist MJ-12." (MJ-12, or Majestic-12, the so-called global secret society that truly runs all Earth governments and reportedly QRP-L as well). Even a barcode at the bottom for activating those anti-gravity propulsion units at Area 51. When you're not at a hamfest, you can display this side at various activities ... say at work, church, your wives bridge club, pulled over for DWI, the next Clinton town meeting, etc.

Seriously (well, sorta), this is all in fun. The stuff QRPers get a kick out of. The Zombie badge is professional in appearance, bright, and guaranteed to make you stand out in a crowd. Clearly tells others you are a QRPer.

Just send me an SASE and the next sequential numbered card is on its way. I donated the printing, and the lamination and clip straps cost about 80 cents, so if you want to enclose a buck to help with that cost, it would be appreciated, but not mandatory. And by the way, the "NorCal Witchess" Sandra is the gal in the other room stamping the numbers on the cards and laminating them with a rather foul look on her face right now. Can't quite figure out what the gig is with these things for a bunch of grown men.

Send SASE to:  
Quicksilver Printing  
ATTN: Witchess Sandra  
P.O. Box 757  
Socorro, New Mexico 87801

I'll also be bringing some with me to the Ft. Tuthill hamfest in Flagstaff (July 25) and to PacifiCon (Oct. 16).

72, Paul NA5N  
Zombie #004

PS - Doug Hendricks is on vacation; the QRPP's are almost done and will be mailed next week. Doug doesn't know this (yet), but the summer issue cover was printed red and black, primarily so the Zombie card could be printed on the front cover (mailing side). So you will be getting a Zombie Card with the QRPP if you want to cut it out of the back cover. Dotted lines provided! Not laminated, of course.

-----  
Date: Thu, 9 Jul 1998 22:42:31 EDT  
From: RangerSF5@aol.com  
To: qrp-1@Lehigh.EDU  
Subject: [14793] perth plus  
Message-ID: <7a83136.35a57f98@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

Hi gang,  
I just looked over the perth plus site that was posted and he's got some real nice pictures there.  
The site loads fast and I had no problem with AOL  
Bob  
WA2HOQ

-----  
Date: Thu, 9 Jul 1998 21:57:11 -0500 (CDT)  
From: Joe Smith <joe@cooldude.com>  
To: jduffy1@ix.netcom.com  
Cc: Low Power Amateur Radio Discussion <qrp-1@Lehigh.EDU>  
Subject: [14794] Re: Perth Plus and Outpost Mount  
Message-ID: <Pine.LNX.3.95.980709215403.27337B-100000@buster.hworx.com>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Thu, 9 Jul 1998 jduffy1@ix.netcom.com wrote:

> If anyone is interested in seeing pictures of the Perth Plus on the Outpost  
> mount and the MFJ 9420 setup that I used on Field Day, I have added them to  
> my web page.



Ward

Ward Hill, WA6FUH  
Engineer at KOVR, Channel 13 (CBS), Sacramento, CA  
<http://www.kovr13.com>  
"Eagles may soar, but weasels aren't sucked into jet engines"  
Life Member ARRL NorCal Zombie #2660 10-10 #27139  
QRP-L #1117 AK/QRP #249 QRP ARCI # 9686  
w\_hill@ns.net  
WA6FUH@KM6PX.#NCA.CA.USA.NOAM

-----  
Date: Fri, 10 Jul 1998 03:58:25 +0100  
From: adams@chuck.dallas.sgi.com (Chuck Adams)  
To: qrp-l@Lehigh.EDU  
Subject: [14796] NN1G FREQ-Mite Update  
Message-ID: <199807100258.DAA02770@chuck.dallas.sgi.com>

Gang,

This morning I posted the specs (or was it last night?)  
for the Small Wonder Labs FREQ-Mite, a PIC based  
frequency counter with audio output in Morse for readout.

Well, it took me 20 minutes to assemble from it from start  
to finish. I hooked up a 2" square modem speaker (flat  
8-ohm speaker) for listening. The audio was not loud but I  
think most of us are going to feed the audio with attenuation  
resistor into audio chain of whatever rig we install it into.

Now being the experimentalist that I am (well my training  
as an undergraduate was experimental but all the advanced  
degrees were theoretical) I went through the following exercise.

Equipment used:

- GC-1000 Clock from Heathkit
- IM-2410 Heath Frequency Counter
- Tektronix TEK191 Constant Amplitude Signal Generator
- Small Gel-Cell for power to FREQ-Mite

Calibrated counter with GC-1000 to WWV with 3.600000 MHz

output from clock while in sync with WWV at 15MHz.  
Using TEK Signal generator as signal source with IM-2410  
measuring exact frequency out, here are the lower  
peak-to-peak voltages at each frequency for accurate  
readings with the FREQ-mite (tm).

0.350MHz	30mVp-p
0.500MHz	30mVp-p
1.000MHz	30mVp-p
2.000MHz	35mVp-p
4.000MHz	50mVp-p
7.000MHz	100mVp-p
10.100MHz	100mVp-p
21.100MHz	250mVp-p
25.000MHz	300mVp-p
30.250MHz	500mVp-p

I didn't spend the time to get the exact floor level  
at each frequency. This should be within 10% or so.  
Neither did I look at high input levels as most of us  
will probably use resistor in series on input to the  
FREQ-Mite to limit current and voltage in cases where  
there is a high voltage level.

Hope this helps.

One word of warning though. The right angle mounting  
bracket supplied with the kit could possibly short to  
a solder pad adjacent to the hole in the board, so be  
extra careful in mounting the board in a rig.

For \$20 I believe the kit to be an excellent deal.  
PC board is double sided plated-through silk screened  
and solder masked and all parts are good quality.

Thanks Dave Benson for another excellent kit. Looks  
like I'll have to get several for some of my favorite  
rigs.

The frequency readout was on the nose for all the above  
frequencies. With the Berg connectors for adjusting  
offset it is very easy to adjust for IF offset and  
any error if 4.096MHz crystal is off a little.

Am I the first to note that 4.096 was chosen due to  
4096 being a number obtained from two raised to a  
integer value?



FYI

Chuck Adams K5FO Dallas,TX CP-60  
http://reality.sgi.com/adams adams@sgi.com

-----  
Date: Thu, 9 Jul 1998 22:55:52 -0400  
From: "Wilford D. Lindsey" <70511.3041@compuserve.com>  
To: //QRP-L Discussion Group <QRP-L@Lehigh.EDU>, "+Doc W.D. Lindsey/K0EVZ"  
<70511.3041@compuserve.com>  
Subject: [14797] HELP w/Elmer101 Prices  
Message-ID: <199807092259\_MC2-52AE-CA8D@compuserve.com>  
MIME-Version: 1.0  
Content-Transfer-Encoding: 7bit  
Content-Type: text/plain; charset=us-ascii  
Content-Disposition: inline

Gang:

Can anyone tell me what the original prices were for the Dave Benson  
"Elmer101" SW-40++ kit, including the professionally-finished case? I  
bought them at different times and cannot recall what the prices were.

Once the prices are determined, I will be offering the kit and case FS.  
Thought of having one built up, but plans have changed.

Thanks in advance for your assistance with this :-).

72/73,  
--Doc/K0EVZ qrp-l 861

-----  
Date: Thu, 9 Jul 1998 21:02:27 -0600  
From: "David Ek" <ekdave@earthlink.net>  
To: <qrp-l@Lehigh.EDU>  
Cc: "Steve Galchutt" <n0tu@webaccess.net>  
Subject: [14798] Backpackin' Field Day '98  
Message-ID: <000701bdabaf\$4f2e41e0\$5cba fed0@davidek>  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

Gang,

Steve N0TU joined me at the last minute for my backpacking FD expedition (thanks, Steve!). Here's his account of the adventure...

-----  
-----  
Backpackin' FD '98 (AB0GO & N0TU)

At the last minute I decided to joined Dave (ab0go) on his backpackin' Field Day '98. Destination: Pike National Forest, in the vicinity of Stanley Reservoir, just west of the U.S. Air Force Academy, a hike of only about two miles but with 1500 feet of vertical gain.

We got off to a false start early Saturday morning by wondering off the main trail for an hour (we took the scenic route, yes that's it). Once back on the trail we made our hill top destination in good time and maybe a few pounds lighter (my tee shirt alone was carrying at least a pound of sweat!). We found a wonderful spot--on the top of a hill but not too exposed, at an elevation of about 9000 feet with a flowing stream just a few minutes away. Despite the very busy trail below us, we saw no one else from our camp.

We joyfully threw down our packs and got busy setting up our FD site. Dave shocked me by pulling out four separate radio boxes from his pack--two rigs, an ATU, and an SWR bridge, plus a 7Ah portable power pack! (Dave's editorial comment: "I'll never carry that much radio stuff in my pack again! ...until maybe FD next year...") We quickly fired up an inverted vee into a tree and loaded up his WM20 rig ...the band was jammed w/FD signals ...but 20 SSB/qrp was slow going. We broke out the my 20m SST on cw and started filling the log as station N0TU running in class 2B-Battery. Dave continued on 20cw while I fiddled w/antennas. I tried an inverted L but the inverted vee had about 2 s-units over the "L" on rx. So we stayed w/inverted vee's. I slung up another vee for 40m. We had Dave's OHR 100 on 40m and my 20m SST operating simultaneously with little interference ...antennas were parallel about 20' apart from each other...surprised me there wasn't more desensing or rx overloading etc.

Dave's mouse (keyer) paddle was a novel idea and worked great for him ...I couldn't seem to get the hang of it under the pressure of FD. (Although, I want to build one of these and try it out in the more relaxed environment.) My keyer decided to drop dits every so often which made me crazy!!! But tapping wires together at 20wpm is not one of my skills so I stuck w/my lame keyer. sending lots of corrections (arrrrugh!).

Weather was HOT for the mountains - in the 80's... but pretty much cloudless so the lightning threat was minimal (tks, Ma nature!). While operating

during the afternoon we found ourselves shifting positions around a small pine tree to stay out of the sun. I slept out under the stars in my bivy sack and Dave in his tent. Sunday was a repeat of Saturday wx wise. ...and the birds were chirping out "CQ FD" and the bands we hopping. I had an earlier commitment which forced us to leave early (10am)... On the hike back down Dave's boots were sending CW as they crunched through the gravel...

A FUN FD experience! Next time I'll bring more than one keyer per rig! And 15m and 10m rigs! And schedule more time. Backpacking added another fun dimension to our FD experience.

Equipment:

N0TU-----

20m Norcal SST @ 1.8w

SW40 @ 1.5w

Homebrew ZM-2 atu

Whiterook paddle w/K8 keyer

1.5AH & 4.5AH gelcells

AB0GO-----

WM20 QRP SSB @ 3w

40m OHR 100 @ 5w

MFJ-901B ATU

MFJ-816 SWR meter

TiCK keyer w/mouse paddle

7Ah gelcel portable power pack

Antennas: 2 inverted vees fed w/300 ohn twinlead

Result: 73 qso's total (40 on 40m, 33 on 20m), about 30 ARRL sections

Two tired hikers (but happy campers)

Enormous fun and great memories

-----  
Date: Fri, 10 Jul 1998 00:17:04 -0700

From: "Doug Hauff" <slmachco@fix.net>

To: <qrp-1@Lehigh.EDU>

Subject: [14799] Rainbow Enclosures!!!

Message-ID: <199807100314.UAA09565@fletch.fix.net>

MIME-Version: 1.0

Content-Type: text/plain; charset=ISO-8859-1

Content-Transfer-Encoding: 7bit

The Rainbow Enclosures have been thru two setups, finishing machining the

sides, then the first CNC setup, where the top (actually the bottom of the completed enclosure) is finished machined, along with the ends, including radiusing (somehow that word doesn't look right) the end corners and radiusing all four top edges...my new vertical machining center produced a BEAUTIFUL finish all around, these are going to look nice...the parts are indeed waiting to be run, the new machine has sat idle for two and a half days while I work on the !!\*%\$\*#! program, my !!\*%\$\*@%!! CAM software just will NOT cooperate, I could have programmed the #\*%#iing thing manually and had it running 'way before this!! And that's what I'm doing tonite, programming it by hand! They WILL be running tomorrow, the covers are running concurrently on the CNC knee mill, at least that machine gives me no trouble(now anyway)! All parts will go to anodizer next week, with just the engraving on the covers remaining to do...variable caps and all hardware are in house, they outta be shipping week after next...72 Doug Hauff KE6RIE

-----  
Date: Thu, 09 Jul 1998 22:22:00 -0500  
From: "edwin a. crowell" <w5twr@rconnect.com>  
To: qrp-l@Lehigh.EDU  
Subject: [14800] equipment for sale.  
Message-ID: <3.0.32.19980709201152.00696ab0@rconnect.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

gentlemen, i am saving up for one of the new qrp rigs to be used in the shack. accordingly, i have decided to let go some of my portable equipment. please reply to me so as not to clutter the qrp-l mail. i have the following for sale.

- 1) Timewave 59+ dsp unit--\$175 in perfect condition
- 2) Norcal SST-30--\$50 all the mods done, looks great, works very well
- 3) MFJ-931 Artificial Ground--\$50 not a mark on it.
- 4) MFJ-16010-ST 200 WATT ANTENNA TUNER--\$25 up to 200 watt, has balun built-in  
this is a "T" type network, very good condition.
- 5) Vibroplex Vibro-Keyer (not the iambic paddle)--\$20 red paddles
- 6) MFJ-490 Memory Keyer--\$90 has Bencher Iambic Paddle, sends code practice too  
all black base, five memories, menu driven.

- 7) MFJ-9020, MFJ 9030 \$90 each, five watt qrp transceivers
- 8) MFJ-4114 Matching Power Supply FOR ABOVE--\$20, EXCELLENT CONDITION
- 9) MFJ-971 Matching Antenna Tuner for above rigs--\$45, works up to 200 watts excellent condition.
- 10) SW-40A+ just completed--\$50, 2 watts out, low power consumption, works great, just the thing for back-packing (which i don't do).

thanks for your consideration. will ship uspo my expense. if quicker service, your expense. all fully guaranteed. will accept cashier's check, or money order.

72, ed

ED CROWELL, W5TWR, WINONA, MN--Norcal #919, Qrp-l #1530, Qrp ARCI #9465  
MFJ-9030, MFJ- 9020, NORCAL 40A, WILDERNESS SST-30, 49-er  
MFJ-971 TUNER, ZM-2, TUNER, MFJ-16010-ST, TUCKER T-1000

-----  
Date: Thu, 9 Jul 1998 20:35:23 -0700 (PDT)  
From: Monte Stark <ku7y@dri.edu>  
To: Chuck Adams <adams@chuck.dallas.sgi.com>  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14801] RE: Mode A and B  
Message-ID: <Pine.SOL.3.96.980709203417.4980A-100000@vortex>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Fri, 10 Jul 1998, Chuck Adams wrote:

> the timing, i.e. the release of the paddle that is the critical element  
> between the modes. Been there, done that..... :-)

Hmmm, ..... Oh, I remember now..... :-)

73, Ron,        SOWP 5545M,

.....KU7Y.....ARCI #8829.....Monte "Ron" Stark.....  
....ku7y@sage.dri.edu.....Washoe Lake, Nevada....  
....QRP-L #17...ARS #49...NorCal #330.....NRA LIFE.....

-----

Date: Thu, 09 Jul 1998 22:55:15 -0500  
From: "George T. Baker" <w5yr@swbell.net>  
To: th.roth@apc.de  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14802] Re: Indoor Antenna  
Message-ID: <35A590A3.66C45458@swbell.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Thomas, after 53 years of hamming next month, I am absolutely amazed that any of this stuff actually works at all!!!

--

72/73, George  
Amateur Radio W5YR, 52 years and counting!  
QRP-L #1373 QRP ARCI #9583 FISTS #4930 ARS #403  
AutoPOWER Systems, Fairview, TX (30 Mi. N. of Dallas)

Thomas Roth wrote:

>  
> George, L.B. and others who are likely to answer,  
>  
> thanks for the replies. I figured as much but, being the trial and error  
> type, thought I might check it out with you guys. Alas, looks like I m  
> confined to the occasional outing for trying out antennas under proper  
> conditions. But then, isn t that part of the fun of QRP !?! What you re  
> saying is true enough. However, I m still surprised at how well it works at  
> times (with my indoor contraption I mean). TNX AGN  
>  
> 72 s de Thomas, DL40BN

-----  
Date: Thu, 09 Jul 1998 22:59:16 -0500  
From: "George T. Baker" <w5yr@swbell.net>  
To: whalen@swcp.com  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14803] Re: PLL chip on the GE help HT?  
Message-ID: <35A59194.25E470F3@swbell.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

I'll look tomorrow or this weekend.

--

72/73, George

Amateur Radio W5YR, 52 years and counting!

QRP-L #1373 QRP ARCI #9583 FISTS #4930 ARS #403

AutoPOWER Systems, Fairview, TX (30 Mi. N. of Dallas)

tom whalen wrote:

>

> Hello QRPer's,

>

> Has anyone received there GE CB HT from Tech America yet? When you do,  
> open it up and see what the PLL chip number is and I will find out if it  
> is convertable to 10. I will spring for the info on this. Maybe most of  
> us should hold out till we find out if it readily convertalbe.

>

> 72, Tom WB5QYT

>

>

> --

> Enjoying QRP and QRP-L!

> Rigs: Ten Tec Argo 509, SST-30, GM-15, OHR Spirit 40, Emtech NW20

> IC-706, 38S, 49er, Bare Essentials, Mizuho MX-7s, HW-8, St.L tuner

> Org: QRP-L 640, scQRPion 22, Norcal 1979, Fists 4465, ARS 396

> Home of the "spud gun antenna launcher"-Kite antennas- RR mobile

--

72/73, George

Amateur Radio W5YR, 52 years and counting!

QRP-L #1373 QRP ARCI #9583 FISTS #4930 ARS #403

AutoPOWER Systems, Fairview, TX (30 Mi. N. of Dallas)

-----

Date: Thu, 09 Jul 1998 23:09:45 -0500

From: "edwin a. crowell" <w5twr@rconnect.com>

To: qrp-l@Lehigh.EDU

Subject: [14804] items sold

Message-ID: <3.0.32.19980709230816.0129d018@rconnect.com>

Mime-Version: 1.0

Content-Type: text/plain; charset="us-ascii"

sorry gentlemen, the vibrokeyer, the sst-30 and the sw-40a are sold.  
thanks for the interest. 72, ed

-----

Date: Thu, 09 Jul 1998 23:23:11 -0500  
From: "edwin a. crowell" <w5twr@rconnect.com>  
To: qrp-l@Lehigh.EDU  
Subject: [14805] equipment sold  
Message-ID: <3.0.32.19980709232121.012992a8@rconnect.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

hi guys, the sw-40a+ and the 4114 power supply are spoken for. earlier notice included the vibrokeyer, sst-30, and the 9020. the rest are still available

72, ed

-----  
Date: Thu, 9 Jul 1998 21:27:51 -0700 (PDT)  
From: Monte Stark <ku7y@dri.edu>  
To: Joe Smith <joe@cooldude.com>  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14806] Re: Perth Plus and Outpost Mount  
Message-ID: <Pine.SOL.3.96.980709212701.4980C-100000@vortex>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi,

I used a MFJ 9040 in my Chev 1 ton 4x4 Diesel with no trouble.

73, Ron,        SOWP 5545M,

.....KU7Y.....ARCI #8829.....Monte "Ron" Stark.....  
....ku7y@sage.dri.edu.....Washoe Lake, Nevada....  
....QRP-L #17...ARS #49...NorCal #330.....NRA LIFE.....

-----  
Date: Fri, 10 Jul 1998 00:00:05 -0700  
From: Mark Saunders <tracker@dancris.com>  
To: AZ QRP <azqrp@dancris.com>, QRP-L <qrp-l@Lehigh.EDU>  
Subject: [14807] Special Event Station K7A and NQ7RP  
Message-ID: <35A5BBF5.3649D436@dancris.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit



## Amateur Radio Is Going To Boy Scout Camp!

Amateur radio is going to boy scout camp with Mark Saunders, KJ7BS, from 07/11/98 until 07/18/98. This is a great opportunity to introduce young men to the hobby of amateur radio. There will be hundreds of scouts at camp and some will stop by and show interest, ask questions, and maybe even participate. Some may even lean their Radio merit badge.

A special event callsign, K7A, has been assigned for this event. The Arizona ScQRPions callsign, NQ7RP will also be used. The operating schedule is listed below. Special K7A QSL cards will be available shortly after I return from camp. I will QSL with anyone who sends a QSL card to K7A via KJ7BS. The Arizona ScQRPions will provide a club card as well.

Operations will be 0200z until 0500z beginning Sunday, 07/12/98 until 07/18/98. Operations will be limited to 40, 30 and 20 meters and I'll be running QRP about 2.5 to 4 watts. The location, North of Fresno, California on Huntington lake at about 7000 feet.

20 meters

14.060 +- traffic

30 meters

10.110 +- traffic

40 meters

7.040 +- traffic

7.110 +- traffic

I will switch between K7A and NQ7RP about every 30 minutes.

Listen for me and give me a call. I hope the boy scouts will have fun. I know I will.

--

Best regards,

Mark Saunders, KJ7BS  
Glendale, Arizona

<http://www.dancris.com/~tracker>

FISTS # 2972; AZ ScQRPions; QRP-L

-----  
Date: Fri, 10 Jul 1998 02:09:56 -0500 (CDT)  
From: jdenison@morelr.com (JOEL DENISON)  
To: qrp-1@Lehigh.EDU  
Subject: [14808] MM VIA KAYACK  
Message-ID: <199807100709.CAA00395@ns1.morelr.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

tHANKS for the replies:

I will post the date and time of this miss-adventure when I can get the kayak set up with the ant... If I find any major problems I'll use the canoe and use the fiberglass ant pole to fish with when I'm not trying to QRP...

Thanks for the reminder of the 20ft fiberglass pole, I'll look for one or maybe try my kite and an anchor, if I can find 200ft of rope... lakes are deep here... :-)

I have the two meter hand held set up with a vertical dipole... (coax with the shield pulled over the insulation... seems to work fairly well... I have it inside a piece of fiberglass fishing (used to be) pole and taped to the back of my seat in the kayak... I get some dead spots with it because the ant is so close to the water but it sure is fun to use the radio shack boom mike on vox and get the guys wishing they were fishing!!! instead of just listening...

well gotta go and work on making a ground plane I can put in the kayak... sure gonna be interesting if I meet up with a thunder storm... :-)  
I understand that non conductive canoes, kayacks and the like tend to vaporise if hit by lightning... The alum boats tend to survive or so I read somewhere...

joel, wa5cvm

God Bless  
Joel

WA5CVM

Joel Denison  
PO BOX 542  
Strong, Maine 04983  
jdenison@morelr.com

Gentle Lady (RC Sail Plane)(049 engine - start)  
DIPOLE on 40mtr  
QRP ARCI 4066 NEW ENGLAND QRP 476 QRP-L 765

-----

Date: Fri, 10 Jul 1998 10:16:35 +0100 (BST)  
From: John Fletcher <johnf@innotts.co.uk>  
To: af389@lafn.org  
Cc: "Low Power Amateur Radio Discussion" <qrp-l@Lehigh.EDU>  
Subject: [14809] Close-ups with digital cameras (long, not QRP)  
Message-ID: <199807100916.KAA09627@carlton.innotts.co.uk>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

Hello Dave and the gang,

At 05:46 09/07/98 -0700, you wrote:

>I need to make closeup color photos of my QRP-L and Homebrew projects.  
>What to see small construction details and small parts well focused.

I have an "old" Kodak DC40 digital camera which has fixed focus. Around the lens is a 37mm female thread for attachments such as filters: most 35mm reflex cameras and some compact cameras have a filter thread around the lens. To take close-up photographs I screw one or two 3-diopter close-up lenses into the thread. These are sometimes called supplementary lenses. My close-up lenses have a 49mm thread so I need stepping rings to convert the thread sizes. The first converts from 37 to 46mm and the second from 46 to 49mm. This spaces the close-up lens away from the camera lens by about half an inch but it doesn't seem to matter. To find the best focus I just took several photos of a contrasty subject, moving the subject an inch further away from the lens each time, and examined the results on the computer screen. With one 3 diopter lens the best focus is at 13 inches, and with two lenses it's 6 inches. Any good camera shop should be able to supply the lenses and stepping rings. The lenses are made in a range of "strengths" from 1 to 10 diopters. Roughly, if your camera focuses at infinity, a 1 diopter lens will make it focus at 1 metre (39"), 2 diopters at 1/2 metre, 3 diopters at 1/3 metre, etc.

I don't know whether your camera has a filter thread, but if not you could probably make some kind of cradle which holds both camera and close-up lens. If you have lots of photos to take, why not make a copy stand? Take a piece of white board about a foot square, or as big as the largest subject you'll photograph, and make a rigid framework of wood to hold the camera cradle over its center at the right height for the lens you're using. Tape a piece of newspaper to the board and photograph it. Examine the result on the screen and make a note of what appears in each corner and the center of the image. Locate these points on the newspaper and prick through with a pin to mark the baseboard. Remove the newspaper and join the corner marks with straight pencil lines to mark the area that will be "in shot". This is necessary

because the viewfinder won't be much use at these distances. If your camera has a built-in viewing screen this won't be necessary.

The flash from the camera will probably be too intense for close-up work. A few layers of white paper tissue over the flash window will help soften it. Surround the subject with a wall of white card to fill in shadows.

>Also need to make photos showing Scope waveforms.

This will be more tricky! Use the same arrangement of close-up lenses as above. The camera's flash must either be switched off (if that's possible) or covered with black tape. If the waveform is a single shot it may not be possible to photograph it because of the problem of synchronising the camera to the sweep. Repeated waveforms should be easier, but the exposure time ("shutter speed") must be long enough to capture one or more whole sweeps. If the camera has a method of firing the shutter by closing a switch, and the 'scope has a time-base output, you could perhaps build something which closes a fast reed relay contact at the start of a sweep. Another approach might be to mask off the flash but include a silicon photocell in the mask. This would give a signal at the instant of exposure, which might be used to trigger the circuit producing the waveform you want to record. It all depends on your needs. There's lots of "scope" for experiment, but no guarantees of success!

I wish you luck, Dave. Please let me know of your results.

-----

Date: Fri, 10 Jul 1998 06:26:59 -0400  
From: "carlos garrett III" <irpilot2@pluto.skyweb.net>  
To: <qrp-1@Lehigh.EDU>  
Subject: [14810] Pixie es Tixie mods  
Message-ID: <199807101049.GAA20735@pluto.skyweb.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Transfer-Encoding: 7bit

Can anyone tell me what value for L3 do I need to use to put the pixie or Tixie on 160 ,20 or 30 meter bands? Ive already got them on 80 and 40 and would like to try them on these bands but can't seem to get the values.  
Thanks es 72 Carl WA1SVS

-----  
Date: Fri, 10 Jul 1998 07:39:23 -0400 (EDT)  
From: "L. B. Cebik" <cebik@utkux.utcc.utk.edu>  
To: QRP-L List <qrp-l@Lehigh.EDU>  
Subject: [14811] note on linear and capacity hat loading  
Message-ID: <Pine.GS0.3.96.980710070949.10843C-100000@moe.cas.utk.edu>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

In the series of articles I did for Communications Quarterly on small beams, I did pieces on both linear loading and on capacity hats.

Linear loading is a form of inductive loading that uses shorted transmission line sections as the reactances. When placed at the center of a dipole, run out on either side, and the linear load wires equally spaced from the element, the load line lengths calculate very accurately using shorted transmission line stub methods. When the load lines are planar or not equidistant from the main element, the length needs to be somewhat longer, since the currents on the 2 lines are no longer equal. If the linear load lines are moved outward to a mid-element position, then even if equally spaced from the conductor, they have a slight difference of current on each line and also become longer than pure transmission lines. However, radiation from the linear load line is only the difference in current on the two lines, and that is no greater than the radiation from a loading coil. Linear loads have a much higher Q than equivalent reactances made from coils, which gives somewhat lower losses, but narrower operating bandwidths. Each of these matters can be an issue for an antenna or might not be an issue on some bands.

All forms of end loading on dipoles of vertical tops are simply compact wire extensions to bring the antenna to resonance or some other specified condition related to length. True hats are symmetrical structures at right angles to the main radiator and hence have virtually no radiation due to cancellation. Other forms of end loading--all variations on solenoid arrangements of wire (although back-and-forth zigzagging will also work)--are also wire extensions. They do not produce complete nulling of radiation in the opposite polarity, but when well designed, that radiation can be 20-30 dB down relative to the main element polarized radiation. The caution for using tightly wound solenoid wire arrangements at the antenna end is the high voltage present, which can arc across turns.

Notice that I do not refer to the inductance, inductive reactance, capacitance, or capacitive reactance of the end loading device. Calling end loading items capacity hats arose from the transmission line analogy applied to antennas and it yielded a way to calculate the size of the hat for LF antennas. At HF, the calculations do not work, and taking either

capacitive or inductive reactance seriously at a dipole or vertical end causes more thinking problems than solutions. Those with modeling programs can try an experiment by making a shortened vertical over perfect earth (for simplicity) and trying to place a load in the outmost segment and getting a value that will bring the antenna to resonance.

The simplest way to think about hats and other outer-end loading is just as extensions to bring the antenna to resonance. There is a continuum from simply bending the ends in a new direction (which maximizes radiation in the new polarization) to non-radiating fixtures. All grow or shrink in physical size as we change the antenna main element length to restore resonance at a desired frequency.

Capacity hat loading maintains the highest feedpoint  $Z$ , with other end loading techniques coming in second. Mid-element loads are next, although they lower the feed  $Z$  considerable, and center-loading drops the feed  $Z$  the most.

It is possible to combine techniques, using, for example, a mixture of hat loading on the ends (within the physical limits of weight and wind catching your situation will allow) and mid-element coils or transmission line stubs to make a reasonably efficient antenna.

In terms of gain, end loading is the most efficient, since the current magnitude remain at the same level as on a full size element until it reaches the load. Mid-element and center inductive loading are less efficient--have lower gains relative to a full size element--since the inductors used have resistive losses. For a given element length, a certain value of inductive reactance will be needed for a center load, and this gives a resistive loss due to the finite  $Q$  of the coil (rarely does coil  $Q$  go over 300, with 150-200 being more typical even in commercial claims). If you replace the center-loading coil with two mid-element loading coils, the required inductance for each approaches the value of the single center-loading coil. With 2 coils the total resistive losses are also double that of the center loading coil. This tends to neutralize to a great degree the once-touted advantage of mid-element loading for a gain advantage. The difference for equal  $Q$  coils throughout is in the .1-.2 dB range relative to a dipole over ground's 7-8 dBi gain.

The arrangement you choose might better be selected on the basis of a desired feedpoint impedance and mechanical considerations for what you can effectively and durably construct.

Rotatable dipoles were promoted in the 1950s by Ed Tilton, George Grammar, and Lew McCoy of ARRL, with Lew publishing a 15 meter rotatable dipole made from newly available aluminum electrical conduit. That was one heavy antenna. Today's more readily available aluminum tubing (6061-T6) makes a rotatable dipole much more feasible, and even for the bands from

20 on down with the right loading combinations. For 10 or 12, for hilltopping exercises, you can make them from old CB radial rods in two pieces and store them for auto travel in a PVC tube that can double as part of the mast.

Hope this is useful.

-73-

LB, W4RNL

L. B. Cebik, W4RNL	/\	/\	*	/	/	/	(Off)(423) 974-7215
1434 High Mesa Drive	/	\	\	\	----	/\---	(Hm) (423) 938-6335
Knoxville, Tennessee	/\	\	\	\	/	/    /	(FAX)(423) 974-3509
37938-4443 USA	/	\	\	\			cebik@utk.edu
URL:	<a href="http://web.utk.edu/~cebik/radio.html">http://web.utk.edu/~cebik/radio.html</a>						

-----  
Date: Fri, 10 Jul 1998 07:55:53 -0400 (EDT)  
From: "L. B. Cebik" <cebik@utkux.utcc.utk.edu>  
To: JOEL DENISON <jdenison@morelr.com>  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14812] Re: QUESTION... FEEDING THE Half-SQUARE... Wire/Rope/Trees  
Message-ID: <Pine.GS0.3.96.980710075302.12360A-100000@moe.cas.utk.edu>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

> ROY, WHEREVER U ARE, CAN U SEND ME INFO ON UR EZNC 2.0 maybe I can pass the  
> hat around the family and get some contributions... :-)

To contact Roy Lewallen for info on EZNEC, try w7el@teleport.com

At my website, within the first note on modeling, there are links to all of the major providers of antenna modeling software who have web sites, including W7EL.

-73-

LB, W4RNL

L. B. Cebik, W4RNL	/\	/\	*	/	/	/	(Off)(423) 974-7215
1434 High Mesa Drive	/	\	\	\	----	/\---	(Hm) (423) 938-6335
Knoxville, Tennessee	/\	\	\	\	/	/    /	(FAX)(423) 974-3509

37938-4443      USA      / \ \ \ \      ||      cebik@utk.edu  
URL:    <http://web.utk.edu/~cebik/radio.html>

-----  
Date: Fri, 10 Jul 1998 05:03:24 PDT  
From: "James Apple" <wb1dog@hotmail.com>  
To: qrp-1@Lehigh.EDU  
Subject: [14813] Freq-Mite and the SW40+  
Message-ID: <19980710120324.21443.qmail@hotmail.com>  
Content-Type: text/plain

Has anyone hooked one of these up to a SW40+ ? I plan to build mine over the weekend, but I was not sure what I should use for the "connection" points and any resistors or caps that I should use for coupling. The manual assumes a little more experience than I have.

Thanks in Advance

72

Jim Apple - WB1DOG

-----  
Get Your Private, Free Email at <http://www.hotmail.com>

-----  
Date: Fri, 10 Jul 1998 08:29:26 EDT  
From: beache@juno.com (Edward B Beach)  
To: qrp-1@Lehigh.EDU  
Subject: [14814] Digital images  
Message-ID: <19980710.082851.8119.0.beache@juno.com>

Sorry to be late on this thread, but I'm an archive-lurker and don't stay too up-to-date on the list!

I happen to have a camcorder and use it to input digital images. I can get great detail at a decent 640 X 480 resolution [good for vga display]. You can use the camcorder alone, or record onto video tape as needed.



The only equipment required is a video capture card such as AI-Gotcha 2! or Snappy. These go for around \$90 and do a great job for the most part. I'm sure the dedicated digital camera would produce better results, but this works for me!

72, 73

Ted Beach - K4MKX

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Or call Juno at (800) 654-JUNO [654-5866]

-----  
Date: Fri, 10 Jul 1998 08:35:28 -0400  
From: Bruce Milne <bmilne@eznet.net>  
To: qrp-l@Lehigh.EDU  
Subject: [14815] FS Timewave DSP 59+  
Message-ID: <3.0.5.32.19980710083528.0079f820@popmail.eznet.net>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

For Sale, mint condition Timewave Digital Signal Processor 59+ \$165.  
Excellent condition. Bruce Milne, WB2QAP ARCI #5639

E-Mail: bmilne@eznet.net  
Phone: (315) - 536 - 8070

72 Bruce, WB2QAP

\*\*\*\*\*  
Let's keep in touch  
Bruce Milne  
bmilne@eznet.net  
\*\*\*\*\*

-----  
Date: Fri, 10 Jul 1998 08:46:37 -0400  
From: "Wilford D. Lindsey" <70511.3041@compuserve.com>  
To: //QRP-L Discussion Group <QRP-L@Lehigh.EDU>, "+Doc W.D. Lindsey/K0EVZ" <70511.3041@compuserve.com>  
Subject: [14816] SOLD:Elmer101 SW-40++  
Message-ID: <199807100851\_MC2-52BC-8651@compuserve.com>  
MIME-Version: 1.0

Content-Transfer-Encoding: 7bit  
Content-Type: text/plain; charset=us-ascii  
Content-Disposition: inline

Gang:

The Elmer101/SW-40++ kit and enclosure have been spoken for. Thanks one and all.

72/73,

--Doc Lindsey/K0EVZ            Rochester, MN--Home of the Mayo Clinic.  
MWBC  
519-16th Street SE  
Rochester, MN 55904  
507/289-5108 (eves)

-----  
Date: Fri, 10 Jul 1998 07:19:40 -0600  
From: "Steve Galchutt" <n0tu@webaccess.net>  
To: "\"Low Power Amateur Radio Discussion\"" <qrp-1@Lehigh.EDU>  
Subject: [14817] "Snake" antenna?  
Message-ID: <009d01bdac05\$6cc97d40\$85a8a3cc@SG2939M.webaccess.net>  
MIME-Version: 1.0  
Content-Type: text/plain;  
          charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

I was reading in Doug DeMaw's Antenna Notebook last night about "on-ground wire antennas". He describes a 'snake' antenna as a full wave length of rg58 coax just laying on the ground shorted at the distant end. Doug also mentions using a full wave loop on the ground with good results, but doesn't go into any details. He does mention using a preamp w/these rx antennas. Interesting idea, and easy to install unlike the beverage which is above ground. I'm just wondering if anyone has tried on of these rx antennas and if they actually work?    72...Steve

-----  
n0tu - solar powered QRP & wire antennas @ 7,200' ASL  
Monument, Colorado - Grid Sq DM79nb  
homepage: <http://www.webaccess.net/~S&P/HRindex.htm>  
email: n0tu@webaccess.net

Date: Fri, 10 Jul 1998 06:35:17 -0700  
From: David Shalita <af389@lafn.org>  
To: "Ham-Homebrew@ucsd.edu" <Ham-Homebrew@ucsd.edu>  
Cc: "qrp-1@Lehigh.EDU" <qrp-1@Lehigh.EDU>  
Subject: [14818] re:Digital Camera  
Message-ID: <35A61895.76F2C2C4@lafn.org>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Hi and a great big "thanks" to EVERYONE for the many messages concerning possible Digital Cameras and lenses to do "close\_up" and "oscilloscope waveform" photos.

A great deal depends upon the following:

1. How much I am willing to spend?
2. How heavy a camera (SONY with 3.5 inch floppy)
3. Do I want to a camera that has focus versatility without need to change lenses or am I willing to use closeup lenses.

I must study your replies and do my homework.  
Thanks again,  
73, W6MIK

--

David Shalita (Dave)  
af389@lafn.org  
Van Nuys, CA

-----  
Date: Fri, 10 Jul 1998 07:49:22 -0600  
From: Brad Mugleston <bmug@gwl.com>  
To: "'qrp-1'" <qrp-1@Lehigh.EDU>, "'cw'" <cw@qth.net>, "'homebrew'" <homebrew@qth.net>  
Subject: [14819] Antenna Q's  
Message-ID: <01BDABD7.42486140.bmug@gwl.com>

What's happening here? This morning while eating breakfast my 8 year old was watching cartoons on the kitchen TV and it wasn't coming in very good. Her older brother got up and put some foil on the UHF antenna (the TV was on channel 2). The picture cleared right up.

While traveling the last few weeks I spent a lot of time in cabs. They seemed all to have one thing in common (other than the driver didn't speak English and seemed to be totally lost in the city). Most if not all of the antennas were bent in the same fashion (straight up, right angle to the side then right angle straight up).

Since an antenna is an antenna is an antenna - What's happening here?

de KBØROL, Brad

-----  
Date: Fri, 10 Jul 1998 09:51:13 -0400  
From: "T.J. \"SKIP\" Arey N2EI" <tjarey@home.com>  
To: "qrp-l@Lehigh.EDU" <qrp-l@Lehigh.EDU>  
Subject: [14820] Thanks folks  
Message-ID: <35A61C51.9B6BEDAE@home.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Many QRP-L people came forward with information on the FT-301S manual.  
Thanks to all of you.

--

+++++

T.J. "SKIP" AREY N2EI e-mail tjarey@home.com

QRP-L #1618 QRPARCI #8634 ARRL Life member

Website <http://members.home.net/tjarey>

Snail Mail: PO Box 236, Beverly, NJ 08010

Specialization is for insects! LAZARUS LONG

-----  
Date: Fri, 10 Jul 1998 09:56:05 -0400  
From: ke4tsa@juno.com (Michael F Danchi)  
To: qrp-l@Lehigh.EDU  
Subject: [14821] Microphone pre-amp design--HELP!!

Message-ID: <19980710.100102.3366.0.KE4TSA@juno.com>

I know this is a little off-topic. However, I also know that QRP'ers LOVE to experiment with and design new equipment. (I am one, and I love it!!) Soooooo..... I'm a classical violinist. I need an inexpensive (<\$100) but HIGH quality microphone pre-amp that will allow me to plug at least one mic (if more, GREAT) into a LINE IN jack on a sound card, MINI-DISK deck, tape deck, etc. (Basically anything with a very cheap MIC input or non at all) Does anybody know of any REALLY good designs, or is does anyone have the expertise to design such a pre-amp that I can build? I'm looking here because the new ones cost \$400 and up (ouch!!). Thanks in advance for any help!!

Michael F. Danchi KE4TSA  
"Guardian"

My Amateur Radio motto: QRP is **\*\*\_NOT\_\*\*** for sissies!!!!

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Or call Juno at (800) 654-JUNO [654-5866]

-----  
Date: Fri, 10 Jul 1998 10:10:12 -0400  
From: Zack Lau <zlau@arrl.org>  
To: qrp-l@Lehigh.EDU  
Subject: [14822] Re: Digital Camera  
Message-ID: <35A620C4.3EFF@arrl.org>  
Mime-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Advanced Digital Imaging seems to have a good reputation on the WWW--I don't think I had to wait more than a week to get a PhotoCD made and returned to me with the originals. However, my QEX cover shots are done with scanned prints. In fact, the scanned images for the 6M yagi project are sharper than the stuff our cover editor normally works with. They were taken with a Nikon FE2, a 60mm macro lens, and Kodak Gold 100 film. The May/June cover was actually done with Gold Max film. Maybe I'll do a cover with Fuji Velvia and see how that compares...

[www.adiweb.com](http://www.adiweb.com)

The \$400 HP Photosmart scanner does slides/negatives without additional accessories.

Zack Lau W1VT zlau@arrl.org

-----  
Date: Fri, 10 Jul 1998 09:15:29 -0500  
From: applitech@mcg.net (Claton Cadmus)  
To: <n0tu@webaccess.net>, "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>  
Subject: [14823] Re: "Snake" antenna?  
Message-ID: <02a901bdac0d\$e26eb3a0\$a10a5e2c@groucho>

This is an interesting antenna I've been meaning to try here for 80 meters. The coax in not shorted though, it is terminated in it's characteristic resistance i.e. 50 ohms. Doug also wrote on using cheap speaker wire as the antenna and reported good results, as I recall he terminated it with a 200 ohm resistor based on a rough calculation of the speaker wire impedance.

.....time passes.....

Here's the article by Doug DeMaw describing both coax and speaker wire versions:

QST Apr-88, On Ground Low Noise Receiving Antennas, Page 30

Hope this Helps,

----

73 de KA0GKC Claton Cadmus

cla@mcg.net

MNQR #1

Minnesota QRP'ers we're looking for you!

Email me or visit this page <http://www.qsl.net/mnqrp>

-----  
Date: Fri, 10 Jul 1998 10:14:06 -0400 (EDT)  
From: "Scott Rosenfeld [NF3I]" <ham@w3eax.umd.edu>  
To: qrp-1 <qrp-1@Lehigh.EDU>  
Subject: [14824] Help w/an Alinco HT, plus ob. QRP  
Message-ID: <Pine.LNX.3.95.980710100924.3181B-1000000@w3eax.umd.edu>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

I'm in possession of my sister's Alinco DJ-F1T 2m handheld. The VCO is apparently unlocked, and according to the factory folks, it's probably due

to a faulty reference crystal which has been known to go south after a number of years.

The joys of used, surface-mount-construction equipment.

They want \$20 for a service manual, \$20 just take a look at the radio, and probably \$80 for the suspected repair.

I've got a well-stocked test bench and wouldn't mind getting some use out of it considering what I've spent on it :)

Anyone with test procedures for this little beastie?

TIA

Oh yeah, made a nice contact with Jim, K8IQY, last night on 40m. People keep asking me "are you really mobile?" Of COURSE I'm mobile! :) It's the only way to be...ask anyone who knows me...when I'm not in the car, I never sit still long enough to have a QS0...

\*\* Scott Rosenfeld NF3I & AAR3IB/T \*\* <http://w3eax.umd.edu/~ham> \*\*  
\*\* Burtonsville, MD FM19mc \* DXCC WAC WAS \* QRP-L #147 \* AK-QRP \*\*  
\* Waiting for 6m to open... \*\* ARRL Life Member/Laurel ARC/UMARA \*  
\*\* 301-549-1022(h) 301-982-1015(w) \*\*\* 35 wpm HF mobile CW Neon \*\*

-----  
Date: Fri, 10 Jul 1998 09:47:10 -0400  
From: rhiller@sysdev.com (Rick Hiller)  
To: qrp-l@Lehigh.EDU  
Subject: [14825] ADDITIONAL DELTA LOOP INFORMATION  
Message-ID: <3.0.5.32.19980710094710.007f6100@stephen.sysdev.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

<....[14714] Delta Info update  
by "Edward A Kwik jr" <eakwikjr@hti.com>

Ed,

The Low Band DX'ing handbook is also an excellent antenna book with some good informatin on Deltas. You can also go the ARRL web site and look in the Technical Information Area for delta loops....this will give you a listing of all articles in QST concerning loops.

The Cebik site is excellent!! but also check out:

<http://www.hal-pc.org/~bvarc/antennas.htm>

I think you will find a large difference in placing the loop solidly in the vertical plane. This will also give you the benefit of feeding it for vertical polarization or horizontal polarization. I've been using delta's for years and have found that they perform well and can be shortened and still attain good performance....ie. load them in the part of the loop that isn't desired for radiating.

You can't just tie the 2 ends on an inverted V together and expect improvement....you must think about how the feed location will affect the current distribution and further...the resultant radiation characteristics. I call deltas 'the most flexible HF antenna', as it can be used to generate almost any type of desire radiation characteristic and the logistics are easy, as it requires just one high point.

GL...Rick...W5RH

-----  
Date: Fri, 10 Jul 1998 08:51:06 -0600  
From: Niel Skousen <skousen@srv.net>  
To: mikemo@ibm.net  
Cc: qrp-1@Lehigh.EDU  
Subject: [14826] ELMER (looong): Re: Oops balun epistle :=(  
Message-ID: <v04003a00b1cbb9114f3e@[205.180.127.169]>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

Hi Mike

Lets see if I can do this justice.... :-(

All you really want to do is:

- match impeadance at the rig output for max power
- minimize the loss to the antenna (most rx sig. most tx sig.. obvious I know)
- match the impeadances at each T.line interface to maximize power tranfer
- and MAYBE control radiation from the feedline system.

Note that the last issue of controlling feedline radiation is really a maybe. If you've seen some antenna literature (eg the 'Carolina Windom' literature), they make a point that they have allowed line radiation from the verticle section of feedline so that the antenna (which is fundamentally a horizontally polarized radiator) will have better low angle



response which is typically, but not always a vertically polarized field.

So there are some times when line radiation is a desired attribute if understood and controlled. Normally we want the line impedance to be more stable and NOT radiate, current balance in the t.line conductors is the critical parameter here (balanced = no radiation, unbalanced = radiation) thus a BALUN is used to connect the coax (unbalanced t.line, but not unbalanced line currents) to the wire line (balanced t.line)

The design of the antenna feed system needs to provide the rig with the proper load (50 ohm) but we do want to minimize the loss and wire line is less lossy than coax. But coax is much more convenient and less impacted by the physical environment than wire line.

So the design decisions are: where to I want to use coax for ease and impedance stability (eg in the house..) ?, how much loss is acceptable to me ? what is the RANGE of impedances that I will be handling ?

Note that your slinky dipole is 72 ohms only at resonance. IF you want to use it on other bands you may be dealing with other, very different impedances. When you look at the handbook for t.line loss (in my HB its section 16, fig 23) there is a graph of loss vs SWR.

At 15Mhz RG58 has 1.8 dB/100' loss, but given a line SWR of 10 (such as trying to feed a 1/2wave vertical) the additional losses would be 2.5 dB/100' for a total of 4.3 dB. For TV type twinlead the same loss numbers are .1 dB and .5 dB for a total of .6 dB.

But what about the same system at resonance..  
(eg your questions Mike, 50 tx.out : 450 line : 70 dipole)  
Look at the losses on the line. Line SWR is 6.4, from the table the additional losses would be .25 dB for a total loss of .35 dB IF you have 100' of line feeding the antenna.

Don't forget to account for line impedance transformations. Remember a 1/4 wave section of line will invert the impedance (eg open will become a short, etc), a half wave line will have near the input impedance at the output... If these concepts are fuzzy lets talk again.

Since your line is probably not short, in fact if it is near an even multiple of 1/4wave long (2/4, 4/4, etc) you may not even need a tuner at resonance even though the line is 450 ohm line. This is how a G5RV has twin lead for a fixed length, then coax for the balance of the feed line.

IF your using a tuner (another .5 - 5 dB issue for later) to operate the antenna system on a band other than the design freq at resonance, you just

bought more system gain than adding a 2 element yagi !!. But to be fair, at HF most of the small array benefits are in the pattern, such as front to back ratio to reject what you don't want to hear rather than to get more of the desired signal.

So ideally you would want the twin lead to run from the antenna to the tuner/matching device to minimize the loss under high line SWR conditions. Remember when you 'tune' the antenna with a tuner, you are simply providing the appropriate impedance transformation between the END of the line and the 50 ohm input to the tuner. You are not, and cannot fundamentally change the antenna SWR or the SWR seen on the t.line, hence the actual line SWR is what defines your line losses, not that you've 'tuned the thingee to 1:1'.

## BALUN

OK, back to the balun. You've decided you want to get part of the run using coax cause its easier to work with and is less susceptible to the nearfield environment.

And lets assume that a remote tuner is not an option, or else we'd put that at the point that we changed from twin-lead or wire line to coax, along with a 1:1 balun.

When we change from coax to wire line, we change from unbalance to balanced lines, at this point it is appropriate to use some form of balun. What form of balun depends on the application.

Lets take a second for a quick review of some key concepts.

- BALUN = BALanced to UNbalanced
- Balun can be any one of 4-5 different types of structures including:
  - broadband transformers (current, voltage, or autotransformers)
  - chokes (typically inductance or ferromagnetic material)
  - sleeves (a transmission line section, sometimes a second braid called 'bazooka' sections)
- the real issue is understanding and controlling the losses and manage Z
- Transmission line key attributes:
  - characteristic impedance or  $Z_0$
  - intrinsic losses are ohmic and radiation
  - currents MUST be equal and opposite or losses (typically radiation)
- Transformers, (we'll limit to broadband) to operate as a xfmr:
  - winding impedance ( $Z_w$ ) greater than the port transformation Z
  - parasitic impedance ( $Z_m$ ,  $X_c$  or  $X_l$ ) greater than the transformation Z

IF the application is narrowband, often a simple coil of coax is used. note that if you make an 8 turn, 6 inches diameter, coil of the coax at the feedpoint what you have done is provide roughly 100-400 ohms of inductive reactance in the shield of the coax. Given this higher impedance no

shield currents will flow except those currents that are in the coax center and braid, and will be

- a) equal and opposite,
- b) see 50 ohm  $Z_0$  of the coax, and
- c) do not radiate...

This is what a BALUN must accomplish.

A sleeve (or Bazooka section) is another traditional method. It is simply a section of braid or pipe,  $1/4$ wave long and connected to the coax shield at the feedpoint of the antenna. This sleeve forms a SHORTED  $1/4$ wave t.line with the braid, and the input impedance of a shorted  $1/4$ wave line is VERY HIGH (10k ohm plus, for good line).

Often since the impedances are higher, a balun with an intrinsic impedance transformation is chosen. Consider that the antenna terminal impedance may range from 70 to 2500 ohms. The tuner will handle impedances from 15 - 700 ohms reasonably well. a 1:4 transformation would provide the tuner with a range to be matched from 17 - 625 ohms.

#### BALUN & TWO HOLE CORES

So we finally get to the question, how do I use the 'binoc core' ? A two hole core has the benefit of more inductance per turn and better magnetic flux containment than a standard toroid, that's why they are used.

Some arbitrary reference notation (for those that don't have the sketches I fax'ed to Mike Mo :-)) One hole is A, its other end is A'. The other is B and B' (B prime). It does not matter which, just pick and keep track of which when we wind the core. We will also refer to the wire end by the hole it enters first.

To wind a single turn, poke the wire into A, it comes out A'. This wire end is now labeled (A). So take end (A) and insert into B', it will come out B. you have one turn on the core.

Repeat the process and you have a two turn winding.

Take another piece of wire, poke it into A', out A, back to B, out B'. This wire (A') is now a 1 turn winding, and forms a 2:1 isolated broadband transformer.

IF we make one of these with a 2t input and a 4t output winding on a BLN202 core we'd have a 50:200 broadband BALUN voltage transformer. It would work reasonably well over the 3.5-30 range. It has no DC connection to the antenna, the isolation (DC) depends on the wire insulation. The two wire side may or may not be symmetrical with relation to the Coax braid due to environmental capacitance (house, tower etc).

The low freq limit of this device is the point where the winding impedance ( $Z_w$ ) is less than approx 2 times  $Z_o$  on either winding. The high frequency limit will be approximately where the capacitance between windings and the mutual inductance ( $Z_m$ ) become less than 2 times the transformation ratio. VERY SIMPLIFIED explanation !!

## FINAL BALUN DESIGN

Lets design a balun for our system, and we've chosen to make a balun from the binocular core. Here are our design criteria:

- a) implement a 9:1 impedance transformation to match our 450 ohm line
- b) In my antenna's I REALLY LIKE to have DC continuity so that I do NOT have static buildup in the antenna, especially when the wind blows (in SE Idaho :-)
- c) we want balance, and further we'd like symmetrical balance with respect to ground... (i know, leading the witness...)

I personally like to implement autotransformers for this application because they force symmetry and provide intrinsic static protection. Since you have a BLN202 core the winding information will be based on that core...

the low impedance will drive the turns count. some calc. time with the Al value of the core says that two turns for the primary will be sufficient.

Therefore the impedance ratio is 9:1, the turns ratio  $n = 3$ , primary =  $2t$ , Secondary =  $6t$ , and since we chose an autotransformer the primary share two turns of the secondary.

We'll wind this on a BLN202 core. This would work ok for 80 and well from 40m-6m. IF you want to tape two BLN202 cores together end to end, aligning the holes, you will get substantially better performance at 80 meters (80-10), 3 cores would work for 160-30m.

## CONSTRUCTION MECHANICS

Take a piece of purple wire 12 inches long (24ga teflon is nice here, color is arbitrary just to help visualize the mechanics), with a knife remove the 1/8 inch of insulation in the center of the wire and attach a small black 1" wire by wrapping and soldering to the main winding at the center of the wire.

One end of the purple wire is (A), the other (B). Insert wire (A) into hole A, (B) into B, and pull the wire ends till the tap (black 1" wire) is snug against the core and offset to either side (A or B). Continue to wind

(A) into B', out B (now 1 turn), again into A, out A', into B', and again wire (A) comes out hole B. We now have two turns of wire (A).

Now tap wire (A) at the two turn point by again removing 1/8" of insulation and attaching (wrap and solder) a 1" red wire. Take care to ensure that the solder connections for the black-purple and red-purple cannot touch, thats why we offset the original winding :-). Continue with wire (A) into A and complete one more winding for three turns of (A).

Wire (B) is still hanging out B'. Insert into A', out A for the first (B) turn, continue till 3 turns or (B). You should finish with wire (A) hanging out hole A' and (B) out B' and the red and black tap's on the other end of the core(s).

Connect red to coax center, black to coax braid. Purple (A) and Purple (B) are the 450 ohm outputs. Remember at 30 Mhz, 5pf is 530 ohms so dress the output wiring carefully and away from each other in your chosen box or pvc tube.

You can add a small (12-15pf) capacitor across the input (red-blk) winding to compensate for increased/ excess inductance in primary winding at the high freq end. This cap will improve performance from 20 Mhz up.

The actual build was really quite easy huh :-). Enjoy your new 50:450 QRP balun, given a single BLN202 core this should handle 50w nicely. And I hope the rest of the feed system is understood a little better too !!

Good luck, next Q ?? :-)

Transmission line theory, in 30 min or less, :-(

Niel

PS: Mike, in line with your post a couple of days ago I posted to ELMER thread, someone else may have some questions this addresses.....

>Ok, let me make some assumptions here. Output of the rig is 50 ohms.

>Assuming the slinky dipole is resonant half wave center fed, that makes

>it about 70 ohms, right? But wait a minute, I'm going to feed it with

>twinlead. How does that effect the design decision?

>

>> Please give me an idea of the config you want to work.... slinky in dipole

>> mode (50:75) ? slinky in G5RV mode (50:200)?, slinky in W3EDP OCFD mode

>> (50:200+?)??

>

>Let me ask another question. I've got an old Swan tuner for my main rig

>/ antenna. It has a built in "balun". I'm feeding 450 ohm ladder line to

>a 40 meter wire dipole. So 50 ohms out of the rig, 450 ohms on the  
>feedline and 70 ohms at the antenna. What a mess! I'm suprised it even  
>works. Can you give me a concise explination of exactly what the balun  
>should do in this instance?  
>

-----  
Niel Skousen : WA7SSA skousen@srv.net  
Idaho Falls, ID QRP-L.119 fr DN33wm

-----  
Date: Fri, 10 Jul 1998 07:54:23 -0700 (PDT)  
From: Paul Erickson <paule@sfu.ca>  
To: applitech@mcg.net  
Cc: qrp-l@Lehigh.EDU (qrp)  
Subject: [14827] Re: "Snake" antenna?  
Message-ID: <199807101454.HAA10872@fraser.sfu.ca>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=US-ASCII  
Content-Transfer-Encoding: 7bit

If you are considering the "snake" antenna, you might want to look  
at ON4UN's discussion of it in his "Low Band DXing".

cheers, Paul VE7CQK/email: paule@fraser.sfu.ca

-----  
Date: Fri, 10 Jul 1998 10:54:43 EDT  
From: lya@juno.com (Lorraine Y Aubert)  
To: qrp-l@Lehigh.EDU  
Subject: [14828] SST  
Message-ID: <19980710.072037.13583.2.LYA@juno.com>

QRP-L Folks! Does anyone happen to have any Wilderness Radio SST's  
lying around that you want to part with? If so, I'd like to buy a 20  
meter and a 40 meter version. Built, unbuilt, or partially built--it  
doesn't matter. Thanks--Lorraine, AC6XK

-----  
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Or call Juno at (800) 654-JUNO [654-5866]

-----  
Date: Fri, 10 Jul 1998 11:03:46 -0400  
From: Zack Lau <zlau@arrl.org>  
To: qrp-1@Lehigh.EDU  
Subject: [14829] Re: Bee Alert\  
Message-ID: <35A62D52.79FC@arrl.org>  
Mime-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Rules don't say anything about operating from tri-state  
corners--looks like a good time to visit the CT/MA/NY  
marker if the weather is nice. Last week I finally found the  
back roads access to the 1.5 mile hiking trail and visited  
the high point of CT (on the CT/MA border). --Zack W1VT

-----  
Date: Fri, 10 Jul 1998 10:14:05 -0500  
From: "V.C. Angell" <angell@northernnet.com>  
To: <qrp-1@Lehigh.EDU>  
Subject: [14830] RE: Fish Story or Know  
Message-ID: <l03120606b1cbde7ef642@[205.198.127.140]>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

When I was in the Army, I worked on a tropospheric scatter site. You could  
take a 40 fluorescent tube outside the van at night and see very well by  
the light it provided -- not fully lit! The transmitters were operating at  
about 1Ghz. There were two and each ran about 50 to 100 kw and that is not  
peak power as in a radar set. They fed two orange peel antennas about 75  
ft. wide and 50 ft. high that sat on the ground -- any place (even behind  
them) you could use the fluorescent tube trick. And they said it wasn't  
harming us - grin. Bet they wouldn't let you do it today.

"VC" KC0EM

V.C. Angell  
<http://www.jewelry-magick.com>  
Jewelry with a secret

-----  
Date: Fri, 10 Jul 1998 10:37:11 -0500  
From: applitech@mcg.net (Claton Cadmus)  
To: <paule@sfu.ca>, "Low Power Amateur Radio Discussion" <qrp-l@Lehigh.EDU>  
Subject: [14831] Re: "Snake" antenna?  
Message-ID: <02d401bdac1a\$b09abce0\$a10a5e2c@groucho>

Paul wrote:

>If you are considering the "snake" antenna, you might want to look  
>at ON4UN's discussion of it in his "Low Band DXing".

Not having this book, would you care to post a summary of the discussion?

-----  
73 de KA0GKC Claton Cadmus  
cla@mcg.net  
MNQRP #1  
Minnesota QRP'ers we're looking for you!  
Email me or visit this page <http://www.qsl.net/mnqrp>

-----  
Date: Fri, 10 Jul 1998 16:53:27 +0100  
From: adams@chuck.dallas.sgi.com (Chuck Adams)  
To: ku7y@dri.edu  
Cc: qrp-l@Lehigh.EDU  
Subject: [14832] RE: Mode A and B  
Message-ID: <199807101553.QAA03877@chuck.dallas.sgi.com>

OK Ron,

You are in trouble now. Just wait until October at Pacificon. :-)

I'll post later this weekend to the group at large about two, yes two, contests to occur at Pacificon. One for fun for the QRP group and Ron, if he will let go of the Mode A mistakes I made. ;-)

The other CW copying contest has grown out of the realm of the QRP world and I will post the details. For those of you wondering what



to practice with. Well, how about taking the newspaper and start reading it in Morse. Find a feed off the internet if possible and use SuperMorse. Details to follow this weekend.

FYI

Chuck Adams K5FO Dallas,TX CP-60  
<http://reality.sgi.com/adams> adams@sgi.com

-----  
Date: Fri, 10 Jul 1998 12:30:48 EDT  
From: DENNISMO@aol.com  
To: qrp-l@Lehigh.EDU  
Subject: [14833] QST Magazine  
Message-ID: <98f31d03.35a641b9@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

Hi Gang..

Has anyone received their July issue of QST magazine? I haven't as of yesterday's mail!

Tnx..

72 de Denny AD6EZ <><  
PROMISE KEEPER

FISTS #4570 / QRP-L #1359 / ARCI #9637 / sCQs #44 / 10-X #69158 / Six Club #242  
HAMing It Up Everyday In Goleta, CA  
Grid: DM04BK / WEB PAGE: <http://members.aol.com/dennismo>

-----  
Date: Fri, 10 Jul 1998 11:49:09 -0500  
From: "Kevin Muenzler WB5RUE" <wb5rue@stic.net>  
To: <DENNISMO@aol.com>, "'Low Power Amateur Radio Discussion'" <qrp-l@Lehigh.EDU>  
Subject: [14834] RE: QST Magazine  
Message-ID: <19980710164911357.AAA93@muenzlerk>

I got mine a couple of weeks ago. I did miss my August 97 issue. I sent

mail

to circulation@arrl.org explaining that I didn't get it. I got a nice message right back saying that a new one would be on its way. Be sure to include your full name, address and callsign in your mail.

Kevin

DENNISMO@aol.com writes:

>  
> Hi Gang..  
>  
> Has anyone received their July issue of QST magazine? I haven't as of  
> yesterday's mail!  
>  
> Tnx..  
>  
>  
> 72 de Denny AD6EZ <><  
> PROMISE KEEPER  
>  
> FISTS #4570 / QRP-L #1359 / ARCI #9637 / sCQs #44 / 10-X  
> #69158 / Six Club  
> #242  
> HAMing It Up Everyday In Goleta, CA  
> Grid: DM04BK / WEB PAGE: <http://members.aol.com/dennismo>  
>  
>  
>

-----  
Date: Fri, 10 Jul 1998 12:55:15 EDT  
From: DENNISMO@aol.com  
To: qrp-1@Lehigh.EDU  
Subject: [14835] re: QST Magazine...  
Message-ID: <3c90b508.35a64774@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

Thanks to all you guys that responded. I will be writing to the ARRL for my July issue.

Tnx agn es 72 de Denny AD6EZ<><

-----  
Date: Fri, 10 Jul 1998 13:05:27 EDT  
From: Cayman71@aol.com  
To: qrp-l@Lehigh.EDU  
Subject: [14836] Need MC13022P AM Stereo Decode  
Message-ID: <4e11dc10.35a649d8@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

I would like to buy at least 2 Motorola MC13022P AM Stereo Decoder chips.

Mouser, Digi-Key, Newark etc no longer have this particular device.

I can't use the surface mount version--need the biggie size.

I am (hopefully) constructing the synchronous detector described in  
Communications Quarterly, Fall 1994.

TU ES 73 E E  
KA8SYV

cayman71@aol.com

-----  
Date: Fri, 10 Jul 1998 12:07:58 -0500  
From: Tellefsen Bob-CNSE97 <cense97@lmpsil02.comm.mot.com>  
To: mikemo@ibm.net  
Cc: QRP-L list <QRP-L@Lehigh.EDU>  
Subject: [14837] balun  
Message-ID: <E726B6D1F2C7D1119AB900805FA74B3C8A738B@s-il02-n.comm.mot.com>  
MIME-Version: 1.0  
Content-Type: text/plain

Mike

You would have an easier time if you cut the 300 ohm line to 1/2 wave at the band you want to use, then use a 1:1 balun to convert from the balanced low Z line (at the shack end) to unbalanced low Z input to your tuner. Avoid the 1:4 stepup baluns you see in most tuners, as they only apply to feeding a balanced load in the 200 ohm area, if the low Z side is 50 ohms. The 1:1 balun is vastly more tolerant than the 4:1 balun. The beauty of the half wave feeder is that it repeats the antenna feed

point down to the tuner. With loading and a low elevation, the antenna feedpoint will be a low Z point, so easily matched with this approach.

You could glue 2 of your binocular cores end-to-end to make a fat rod, then put about 12 bifilar turns of #18 to #22 enameled wire on for the balun winding.

A bifilar winding is very easy to do. I take a piece of wire, maybe 5 feet long, and clamp one end in a vise (or have someone else hold it with a pair of pliers). Pull the other end until the wire is straight and free of small bends. Now bend it in half so the two wires are tightly side by side. At about 4 inch intervals, I put thin slivers of scotch tape around the wires to keep them close together. Now put a dozen turns of this around your core. Leave a space of about one wire diameter between one bifilar winding turn and the next to minimise capacitive coupling between turns. It should look like this  
--oo\_oo\_oo--and so on.

Put a coax plug (maybe on a short coax pigtail) on one end, and a couple of banana jacks on the other. Put banana plugs on the end of the 300-ohm twinlead. Plug the coax plug into your tuner and connect the 300-ohm feeder to the banana jacks and tune up. If you have a lot of twinlead laying in a pile because the antenna is just overhead, drape the loose feedline around in the rafters. Just keep it up off the ground and away from metal structures, wiring, plumbing, and the antenna itself.

Good luck and 73,  
Bob N6WG

-----  
Date: Fri, 10 Jul 1998 10:04:00 -0700 (PDT)  
From: KC5TJA <kc5tja@topaz.axisinternet.com>  
To: DENNISMO@aol.com  
Cc: Low Power Amateur Radio Discussion <qrp-1@Lehigh.EDU>  
Subject: [14838] Re: QST Magazine  
Message-ID: <Pine.LNX.3.96.980710100345.28638A-100000@topaz.axisinternet.com>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Fri, 10 Jul 1998 DENNISMO@aol.com wrote:

> Hi Gang..  
>  
> Has anyone received their July issue of QST magazine? I haven't as of  
> yesterday's mail!

Now that you mention it, I haven't received my copy either...

```
=====
      KC5TJA/6      |      -| TEAM DOLPHIN |-
      DM13          |      Samuel A. Falvo II
      QRP-L #1447   |      http://www.dolphin.openprojects.net
=====
```

-----

Date: Fri, 10 Jul 1998 10:17:24 -0600 (MDT)  
From: marion@montana.com  
To: qrp-l@Lehigh.EDU  
Subject: [14839] moving SST to 15mtrs  
Message-ID: <199807101617.KAA18424@paw.montana.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

I recently posted info on moving 20mtr SST to 15mtrs. Heres another component change, RFC1 to 2.7uh(or close to it). Improves match to filter and recieve. 72 Roy AB7CE

-----

Date: Fri, 10 Jul 1998 12:15:35 -0500  
From: Tellefsen Bob-CNSE97 <cnse97@lmpsil02.comm.mot.com>  
To: 71052.134@compuserve.com  
Cc: QRP-L list <QRP-L@Lehigh.EDU>  
Subject: [14840] Tuna Tin rig  
Message-ID: <E726B6D1F2C7D1119AB900805FA74B3C8A738F@s-il02-n.comm.mot.com>  
MIME-Version: 1.0  
Content-Type: text/plain

Willie

I prefer not to use mono or stereo plugs for power. If the plug is hot before you plug it in, you will have a momentary short circuit while the hot tip moves through the grounded body of the jack, before making contact.

I use phone plugs for power when I'm just tinkering with little fun rigs, even though I don't like the idea of an exposed hot tip. At least there is no shorting of the power source when plugging in the power lead.

73, Bob N6WG

-----  
Date: Fri, 10 Jul 1998 10:46:08 -0700 (PDT)  
From: KB0VCC/1 <kb0vcc@rocketmail.com>  
To: qrp-1@Lehigh.EDU  
Subject: [14841] 49er to 10-9er?  
Message-ID: <19980710174609.19759.rocketmail@web2.rocketmail.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii

Hey Folks,

Anyone try to convert their 49er to 10m? If I can find my schematic I think I'm going to try to do just that.

The other evening, I made my first CW contact this year on 10m (band condx have been poor here) using my main station rig. That same evening, I dusted off the ol' 49er and snagged a contact about 500mi away on 40m with a whopping 450mW just by calling CQ. That got me to thinking...(uhoh) I've got a functional 49er that until the other evening, I hadn't touched in over a year. Maybe it's time I do something about that.

Here are my questions; besides retuning the tank, filter, changing the crystal, and other likely tweaks here and there, what problems might I likely encounter by quadrupling the freq? Should I be concerned about higher freq problems like, component lead length (probably not a problem since I ALWAYS keep 'em short), PCB etches not over a ground plane? Will I need to nutralize at the Q's? Will the Z change between stages? Would it be more practical to approach this project with a total redo-from-scratch than to bastardize my poor, helpless lil 49er? The more I think of doing this, the more I want to build a pocket-sized 10m rig. I'd rather attempt this mod or do my own design than to do another kit.

Comments? Suggestions?

Thanks es 72/73,  
-Dale

P.S. I'll keep everyone posted on the progress.

=====

Dale Anderson	In the Mt Washington Valley
KB0VCC	Conway, New Hampshire
QRP-L #91 / CQC #251	Grid Sq: FN43KX
ARS #234 / FISTS #3172	<a href="http://www.qsl.net/kb0vcc">http://www.qsl.net/kb0vcc</a>

=====

-----

DO YOU YAHOO!?

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-----

Date: Fri, 10 Jul 1998 09:15:37 +0100  
From: Dick G0BPS <G0BPS@kanga.demon.co.uk>  
To: chrisfresh@juno.com  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14842] Re: 14.060 mhz xtals--scount  
Message-ID: <9vHilJAp2cp1Ewh\$@kanga.demon.co.uk>  
MIME-Version: 1.0

In message <19980710.021131.5263.0.chrisfresh@juno.com>, chrisfresh@juno.com writes

>I want to build my two Pixies for 20 meters, but need to know a good  
>scount of the xtals, Dan's Small Parts is not listing 20 M xtals in his  
>catalog, HSC said they didn't have. Any body know a good scount of  
> qrp XTALS,  
>especially 20 meters, though 17 would be fun, too.

I stock the 14.060 crystals.

Email me for prices etc or check my www pages.

--

Dick Pascoe G0BPS  
Kanga Products  
Seaview House, Crete Road East  
Folkestone CT18 7EG U.K.  
Tel 44 (0) 1303 891106  
<http://www.kanga.demon.co.uk>

-----

Date: Fri, 10 Jul 1998 10:51:32 -0700  
From: Dan Baldwin <baldwin@primenet.com>  
To: qrp-1@Lehigh.EDU  
Subject: [14843] Web site with reviews on HF rigs and equip?  
Message-ID: <3.0.5.32.19980710105132.0083d8a0@mailhost.primenet.com>  
Mime-Version: 1.0  
Content-Type: text/plain; charset="us-ascii"

Does anyone know of websites which may have Ham HF rig and equipment reviews? There are review websites for everything else, computers, video equip. etc. but I have never seen one for Ham equipment.

Dan, 73 KK7JZ

-----  
Date: Fri, 10 Jul 1998 18:59:16 +0000  
From: "Frank G3YCC" <g3ycc@g3ycc.prestel.co.uk>  
To: "Low Power Amateur Radio Discussion" <qrp-1@Lehigh.EDU>, w6toy@erols.com  
Subject: [14844] Re: Digital Camera  
Message-ID: <E0yuhVE-0002hc-00@hen.scotland.net>  
MIME-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7BIT

What do I need a digital camera for...? Well, being a mad soccer fan (following our local semi pro team), I take action pictures for the club matc programme. For the last few seasons I have used a 35mm Nikon with a 300mm zoom plus 1.6 times coverter. Then I had to take the film in for developing, bring home the prints, scan them and manipulate the images using the PC. Now, with the Sony Mavica I have I can take pretty good shots with the excellent zoom facilities and have the pictures ready on the same day of the match AND it does not cost the football club anything. Ignore what I have spent though! Also the digital is excellent for pictures of rigs etc for my web page. I love the Mavica!

Just for interest and thankd for the tip on the alternative!

--73--

Frank G3YCC G QRP 042  
email: g3ycc@g3ycc.prestel.co.uk  
QRP web Site: <http://www.homeusers.prestel.co.uk/g3ycc/>  
Packet: G3YCC@GB7HUL

-----



Date: Fri, 10 Jul 1998 14:04:43 -0400  
From: "Harry T. Hurst" <hhurst@delaware.infi.net>  
To: <qrp-1@Lehigh.EDU>  
Subject: [14845] 49er to 10-9er?  
Message-ID: <199807101803.0AA07609@fh101.infi.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Transfer-Encoding: 7bit

Sounds like a great idea Dale, but 10-9er sounds kind of CBish!  
How about 10er? Heath isn't around anymore to complain.

I saw a diagram of a 2 crystal vxo the other day somewhere on the web, I have it printed out here somewhere. It used 2 crystals to output on about 100 khz of 80 meters. I wonder if something like that could be worked out for a 10 meter rig?

hmmm.... let's see, a vxo, driver and final on the transmit side, an rf amp, mixer and LM380 on the receiver side. The trick is to keep it simple and cheap while ending up with a usable radio.

-----  
Date: Fri, 10 Jul 1998 11:30:11 -0700  
From: W7LS <w7ls@blarg.net>  
To: n0tu@webaccess.net  
Cc: qrp-1@Lehigh.EDU  
Subject: [14846] Re: "Snake" antenna?  
Message-ID: <35A65DB3.2512@blarg.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Hi, Steve. I have a Snake-in-the-grass dipole that I use from time to time. It is a long piece of coax, over a quarter wavelength, with a choke torroid at 1/4 wavelength from the distant end. At distant end, you hook on a 1/4 wave length of plain old wire. Don't short the coax out there. You feed it at the other end. One word of caution on lengths, though; when an antenna is on the ground, it appears electrically longer than it should be due to all the extra capacitance of the ground and such. It is a big factor. A typical dipole will be about 55% of normal length, according to the Antenna Anthology, volume either 2 or 4. I have

transmitted on these. They work both ways. Not too well, but easy and fast to deploy and haul in. I suggest a tuner, too.

73 de Jim, W7LS

Steve Galchutt wrote:

>  
> I was reading in Doug DeMaw's Antenna Notebook last night about "on-ground  
> wire antennas". He describes a 'snake' antenna as a full wave length of rg58  
> coax just laying on the ground shorted at the distant end. Doug also  
> mentions using a full wave loop on the ground with good results, but doesn't  
> go into any details. He does mention using a preamp w/these rx antennas.  
> Interesting idea, and easy to install unlike the beverage which is above  
> ground. I'm just wondering if anyone has tried on of these rx antennas and  
> if they actually work? 72...Steve  
>  
> -----  
> n0tu - solar powered QRP & wire antennas @ 7,200' ASL  
> Monument, Colorado - Grid Sq DM79nb  
> homepage: <http://www.webaccess.net/~S&P/HRindex.htm>  
> email: n0tu@webaccess.net

-----  
Date: Fri, 10 Jul 1998 14:34:58 EDT  
From: Davewb4@aol.com  
To: QRP-L@Lehigh.EDU  
Subject: [14847] A tip of the hat  
Message-ID: <c4226bef.35a65ed5@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

Hello Gang:

A tip of this home brewers hat to all who responded to my request for a source for MRF477's. I guess i should have said I had checked all the usual sources (and some off the wall spots). The response was fantastic and the advise was welcome. Its back to the drawing board. will probably use some MRF475's, about half the power , but who cares, its the building and that first contact, after that its on to the next project. By the way it seems that MRF477's are history!! If you have one, frame it and put it on the wall next to that Spratly Island card.

Thanks again to all

73

Dave Rogers

WB4CHK

-----  
Date: Fri, 10 Jul 1998 14:03:59 -0500  
From: "George T. Baker" <w5yr@swbell.net>  
To: ke4tsa@juno.com  
Cc: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14848] Re: Microphone pre-amp design--HELP!!  
Message-ID: <35A6659F.6FF850A7@swbell.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Michael, I am having trouble understanding your application. You want a HIGH quality mic preamp to plug a mic (of unspecified quality) into "... basically anything with a very cheap MIC input or non (?) at all."

My hangup is why demand HIGH quality in the preamp if you are going to plug it into anything with a "very cheap mic input?"

Looks to me that any "quality" (bandwidth, lo-noise, etc.) built into the preamp and its mic would almost by definition be wasted in the lack of quality of the device into which the preamp/mic is plugged.

Help me out here . . .

If you want simple and CHEAP, Tech America in their latest flyer (July 1998) shows an "Audio Preamp" kit for mic to line level for \$9.95. Runs on 9-volt battery - good idea to keep ground loop problems away. Call them at 1-800-877-0072 and ask about 990-0153. I doubt that this is any great shakes as an amplifier, but it might allow you to play around with your application and get a better handle on what you need.

A much better looking unit - in terms of specs - is their 990-0006 Stereo Pre-Amp kit at \$17.95.

OBQRP: Mike, you better act like this is a mic preamp for a qrp rig so the guys won't fuss at you for being off-topic! ;^)

--

72/73, George  
Amateur Radio W5YR, 52 years and counting!  
QRP-L #1373 QRP ARCI #9583 FISTS #4930 ARS #403  
AutoPOWER Systems, Fairview, TX (30 Mi. N. of Dallas)

Michael F Danchi wrote:

>

> I know this is a little off-topic. However, I also know that QRP'ers

> LOVE to experiment with and design new equipment. (I am one, and I love  
> it!!) Soooooo..... I'm a classical violinist. I need an inexpensive  
> (<\$100) but HIGH quality microphone pre-amp that will allow me to plug at  
> least one mic (if more, GREAT) into a LINE IN jack on a sound card,  
> MINI-DISK deck, tape deck, etc. (Basically anything with a very cheap  
> MIC input or non at all) Does anybody know of any REALLY good designs,  
> or is does anyone have the expertise to design such a pre-amp that I can  
> build? I'm looking here because the new ones cost \$400 and up (ouch!!).  
> Thanks in advance for any help!!  
>  
> Michael F. Danchi KE4TSA  
> "Guardian"  
>  
> My Amateur Radio motto: QRP is **\*\*\_NOT\_\*** for sissies!!!!

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Date: Fri, 10 Jul 1998 15:13:56 EDT  
From: MNHopkins@aol.com  
To: QRP-L@Lehigh.EDU  
Subject: [14849] Echo: Ten-Tec DC RX FB  
Message-ID: <1f558873.35a667f6@aol.com>  
Mime-Version: 1.0  
Content-type: text/plain; charset=US-ASCII  
Content-transfer-encoding: 7bit

Goad to see Dan Epps, AB5PC, joins our army of satisfied users of the Ten-Tec  
10-56 Receiver -- a true \$30 wonder

This little board amazed me the first time I heard one. I bought one built  
for 20M and converted it to 30M after a half hour of rummaging for parts as  
the first owner had lost the band pack that allows operation on any band  
10-160. I am still using that RX on 30M. The circuit allows for infinite  
bandspread, and I have about 22kc. It also has mute and more audio than  
anyone's backpack carryalong -- it is three times bigger at least than an NN1G  
and thus a joy to assemble and modify. It is a Direct conversion scheme, and  
the best I've ever encountered. I can crank down the audio filter and do FB  
on 30M CW. It even filters out the Mexican sidebanders: Ole!

The Ten-Tec 1056 is always the first project I recommend to new builders.

73 de ab5L, michael in dallas, student of Tecraft and International (ICM) ham  
products and mementoes of Six Meters' Golden Age: 1957-58  
Michael Hopkins  
Box 226841  
Dallas, TX 75222 MNHopkins@AOL.com

-----  
Date: Fri, 10 Jul 1998 14:42:02 -0500  
From: "George T. Baker" <w5yr@swbell.net>  
To: Steve <kd1jv@moose.ncia.net>, Conrad <radman@best.com>  
Cc: qrp-1@Lehigh.EDU  
Subject: [14850] Re: PLL chip on the GE help HT?  
Message-ID: <35A66E8A.C7D5CCF4@swbell.net>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Ok, guys, listen up - here's the poop:

The PLL IC is a 22-pin DIP labeled on the board as "IC01". The only other IC I can find is IC02 which is a 3-terminal regulator chip. There is a power transistor for the output labeled Q6 and what appears to be a driver Q5. There are several air-wound coils in the interstage and output networks. Not much room to be adding a lot of conversion circuitry in my judgment.

The PLL chip is mounted right next to a crystal which, in fact, is folded down on top of the chip and fastened there with pooky - yeah, I had to scrape it all off to read the legend on the chip!

The chip looks like this on top:

9587  
C5121 00

The crystal is marked:

N ELE. 5K  
10.2400

I am rather disappointed in the little radio since I had the mental image that I was getting another unit like the GE 40-channel 5-watt handi-talkie CB I already had. No Way! This little unit is closer to a Radio Shack kid's handi-talkie. Haven't had it turned on yet, but just not much "innards" in there.

The antenna is strictly external, plug-in (furnished) via RCA connector. Power is plug-in from cigar lighter plug (furnished). The rig is complete ready to run but is NOT a talkie as some would probably like to

have for portable use. Basic external layout would make it easy to use in the field or even in a car. Antenna is an external telescoping mag-mount.

Maybe this will give you guys some ideas, but as you can probably tell, I am not all that excited over the prospects. I plan to keep the rig in the Saturn Station Wagon that I tow behind the motor home for emergency and caravan purposes.

Still well worth \$17.76 though!!

--

72/73, George

Amateur Radio W5YR, 52 years and counting!

QRP-L #1373 QRP ARCI #9583 FISTS #4930 ARS #403

AutoPOWER Systems, Fairview, TX (30 Mi. N. of Dallas)

Conrad wrote:

>

> Hi George,

>

> I'm working on the CB to 10M project with Steve Weber. Any

> info on which PLL chip is in that little GE handie-talkie

> would be of value to us. We're considering that unit as a

> possibility.

>

> Thanks in advance,

>

> 72 - Conrad Weiss - NN6CW

-----  
Date: Fri, 10 Jul 1998 13:05:02 -0700

From: "Jim Johnson" <km7h@gte.net>

To: "qrp-l" <qrp-l@Lehigh.EDU>

Subject: [14851] FS: QRP++

Message-ID: <01bdac3e\$064559c0\$1cfd2399@km7h>

MIME-Version: 1.0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

This is one of the later model QRP+ rigs. Don't have the serial # with me, but if you are interested we can communicate. Asking \$450 + shipping. It's in very good condition. Has the added RF control (on back) and the protective diodes on the input. those are the only mods. Have a small

handheld mic.

Jim Johnson, KM7H  
Mukilteo, WA  
QRP ARCI #3497  
NWQRP #480

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Date: Fri, 10 Jul 1998 15:54:46 -0400  
From: THE ONE AND ONLY <mitch96@pobox.com>  
To: Qrp-l@Lehigh.EDU  
Subject: [14852] Question on rig placement  
Message-ID: <35A67185.5EE7@pobox.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Hi gang,  
Time to put on your capacitive thinking hat's on.  
Moved into the new taco casa recently and i am curious about my rig  
placement. Which is the worse of two evils?? close to the power meter,  
water pump,telephone line combo Or near the ground mounted AC unit with  
its various and sundry motors with the arcing brushes. Also how would  
this effect antenna placement?? What do you think???  
inquiring minds (mine) want to know  
--

Mitch, Ww4mL  
Eschew Obfuscation!

-----  
Date: Fri, 10 Jul 1998 20:49:37 +0000  
From: Ed Loranger <we6w@qsl.net>  
To: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>  
Subject: [14853] Email dwn and/or slow at qsl.net  
Message-ID: <35A67E61.3171@qsl.net>  
Mime-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

Just a quick apology: If anyone sent me a pers. msg, my

email has been down since last night. As of 5 minutes ago, it appears I'm starting to receive some of that email now.

Anyone needing to repeat a message can send to me at <mailto:ooringer@geocities.com>

Also, if you've never visited my recreational webpage covering my HorseShoe pitching club, (I'm the prez...), visit us at <http://www.geocities.com/yosemite/trails/2052>

I've added a 'Wine Country' yellowpages search link at the bottom of that page. Really nice to see what's available here in Sonoma County, Santa Rosa, CA. We are non-profit and I'll be adding some photos soon showing the latest progress -- We are totally rebuilding from 12 to 16 pitching courts.

Anyway, just a brief message for y'all.

Have a nice weekend. And if you need to keep your worms warm while fishing in the Ice Floes, store the worms in your mouth.... (Heard this joke today....)

Hope to work someone in the Summer sprint, 20-2400Z on Sunday. It's my birthday so don't know what will happen -- Big "4-0" G'nite all.

-Ed

--

72, =ED, WE6W/qrp CW ONLY; Proud Member: QRP-L/ARCI/Norcal/ARS/AR  
<http://www.qsl.net/we6w> (Enjoying Ham Radio every day.)

-----  
Date: Fri, 10 Jul 1998 16:03:33 -0500  
From: "Craig B. Johnson" <[johns516@maroon.tc.umn.edu](mailto:johns516@maroon.tc.umn.edu)>  
To: <[qrp-l@Lehigh.EDU](mailto:qrp-l@Lehigh.EDU)>  
Subject: [14854] Elmer 101 debugging sessions  
Message-ID: <002301bdac46\$5056dcc0\$9bc65ea0@pentium>  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: 8bit

Elmer 101 gang,

OK, I'll admit it. I couldn't wait any longer and I went ahead and



finished my SW-40+.

I faithfully stayed with the class through the completion of the transmitter, but then I just had to go ahead and finish it.

I still plan to do all the remaining "lessons", checking the various signal levels with my oscilloscope, etc. It has been an interesting "class" for me.

The rig works great! I finished it just a couple of hours before field day started, and I made about 30 field day contacts with it. I have mine set up tune from 7.009 MHz to 7.045 MHz. (I used a 47 pf capacitor for C7. The "natural frequency" without C7 was 7.074 MHz).

I just ordered the Freq Mite from Dave, and will be installing it in the rig soon.

I did run into a problem after I finished the construction of the receiver. I had the following email exchanges with Glen Leinweber, VE3DNL, and I will now share them with you. I didn't post them to the group initially because I was "ahead" and didn't want to cause confusion.

Here is the email correspondence I had with Glen regarding some transmitter problems:

=====

Glen,

(6/20/98)

I am building a SW-40+ (with the QRP-L Elmer 101 project). I got the transmitter working with your help. Thanks! It puts out a nice, clean 2+ watts. About 30 V peak-to-peak. Very nice signal.

Then I couldn't wait any longer, and went ahead and finished the kit! Therefore, I can't really post this to QRP-L yet. However, I have a problem. Now when I transmit, I get very little power out of the transmitter. (I haven't even tried to see if the receiver works yet.) I only get about 150mv peak-to-peak out when keying the transmitter. I am trying to understand the TR switch circuitry, and the 4 diodes (D7 - D10). It almost looks like the diodes will limit the voltage. Then I calculated the impedance of C40 to be 500 ohms at 7MHz, so I guess if I can get enough current flow through RFC3, the combined IR drop across C40 and the voltage drops from the two diodes should still be OK. It isn't. Do you have any ideas what could be wrong? I did install the potentiometer at J1 and peaking T1 does affect the transmitter output very slightly. RFC3 is not "open". I have not installed the tuning potentiometer at J2 yet. but still have the jumper from pin 2 to 3.

Any help would be much appreciated! I will wait for the group if you would rather.

- Craig, AA ZZ

=====

Craig,

(6/22/98)

C40 and RFC3 form a series-resonant tuned circuit, which resonates around 7MHz. Its low-Q, so doesn't need to be trimmed. So even though you calculate 500ohms for C40, the actual impedance between the antenna PI filter and the RX input (T1) is very low.

With a properly working transmitter, D7-D10 will conduct on the transmitted peaks, limiting the >30v to about 2.6v p-p. When the diodes conduct (while transmitting), their impedance is VERY low. This destroys the Q of C40/RFC3, and you can't think of these two components as a series-resonant circuit anymore. Now RFC3 acts as a choke of 440 ohms impedance going into the receiver.

What does the transmitter see? It mostly sees a 47pf capacitor going to ground - the diodes provide a ground-path for a large portion of the 7MHz cycle. You could ground the diode-end of C40 and the transmitter wouldn't

notice (but then the receiver wouldn't get any signal).

In troubleshooting your transmitter, I'd look elsewhere for the trouble, not at this part of the TR circuit. I'd be looking around Q6... at D12, D6.

I'd want to know if Q6 is getting a good base-drive signal. That'd tell me if the trouble is before the final. If there IS a good 7MHz signal at the base, I'd be taking a close look around Q6, D12, L2, and the PI-network to the antenna. Hope you've got a dummy load on, while testing.

- Glen

=====

Glen,

(6/22/98)

Thanks for the help! Here is the latest in the saga.

First of all, yes, I do have a dummy load connected.

I checked the voltage at the base of Q6 and get a nice, solid 2 v p-p at 7MHz.

The voltage at the collector of Q6 remains a meager 150 mv p-p. This pointed me to suspect D12. I lifted one end of this diode so I could check it with my Ohm meter. I get about ~74 ohms(??) in one direction and "infinite" in the other direction. I think this indicates that it is OK, but it may still be the culprit. I don't have an easy way to test the reverse "zenner" action that this diode is supposed to provide. I don't have another 33v zenner handy, but will get one if you think that is still a prime suspect. I haven't tried transmitting with D12 lifted. I don't think it would hurt anything, and didn't dare!

I tried grounding the diode end of c40, and the transmitter output still remains the same.

I have checked all the DC voltages that are indicated on Dave's schematic, and all are good.

L2 appears to be good; the 150mv p-p is found on both sides of L2.

The thing that is so confusing to me is that the transmitter WAS WORKING FINE until I added the receiver and TR circuitry. This makes me suspect a component that was ADDED. Not necessarily, I know.

Is it correct that I should see about 30v p-p from the collector of Q6 to ground? (Same as the output of the PI network.)

Thanks again, Glen.

73,  
- Craig, AA ZZ  
=====

Craig, (6/23/98)  
Since you've got D12 lifted, try the transmitter. Just be sure your dummy load is connected: the purpose of D12 is to protect the final amp from rouge loads.  
74 ohms seems a little low for measuring the impedance of the zener. But some ohmmeters display strange stuff when measuring diodes, depending on their current source, and voltage scaling. Since it DOES measure infinite resistance the other way, I'm with you - I think it's probably OK.

Looks like you've got good base drive on the final. Its looking more and more to me like the final amp (Q6) is cooked somehow. Before pulling it out, do a really careful visual inspection on top of the board, and on the bottom of the board around Q6, L2, D12, C36, C37, C40 and L3. Look for open circuits and shorts. I'd do this check under a really bright light and a magnifying glass. I've found more than a few faults this way: things like hair-line cracks in traces, or lifted pads or filamentary shorts between traces.  
Measure the DC voltage on the heat-sink tab of Q6: should be +12V DC.  
Measure the base drive right at the base lead of Q6: you may have measured it elsewhere, and somehow its not getting into Q6.  
Also, make sure the emitter lead is well-grounded too - its not a check that Dave has asked for, but the final amp sure won't work if Q6's emitter isn't at ground.  
Yes, the peak-to-peak voltage at Q6's collector should be in the range of 20-30 volts, unless you've got the drive pot turned way down.

The next step after doing all these checks is to pull Q6, and test it with your ohmmeter. De-soldering a three-legged transistor like this is tricky: the printed circuit pads take a beating. Its an area where currents are high, so you don't want to beat-up these pads too much. Sometimes its better to cut Q6 out rather than de-soldering it. Then you can clear the three holes one-by-one.

Good luck, and keep in touch

-Glen

=====

Glen,

(6/24/98)

YES! It works! The bad guy was Q6. I changed it, and now the transmitter is putting out a nice, clean 2+ watts again. Getting almost 30v p-p on output! Now on to testing the receiver.

Glen, thanks so much for your time and your patience.

In retrospect, debugging a problem like this has helped me understand the circuit more, and that is why I am building this. I really was confused though, and I really appreciate your depth of knowledge and willingness to help.

A big 73 to you, Glen!

- Craig, AA ZZ

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Date: Fri, 10 Jul 1998 21:08:44 +0000

From: Ed Loranger <we6w@qsl.net>

To: Low Power Amateur Radio Discussion <qrp-l@Lehigh.EDU>

Subject: [14855] Sri B/W: email Back OK!

Message-ID: <35A682DC.449F@qsl.net>

Mime-Version: 1.0

Content-Type: text/plain; charset=us-ascii

Content-Transfer-Encoding: 7bit

If I'd waited only 10 minutes more...

Full email service back on at qsl.net.

72/Best weekend to all.

-Ed 39 and 363 days old.

--

72, =ED, WE6W/qrp CW ONLY; Proud Member: QRP-L/ARCI/Norcal/ARS/AR

<http://www.qsl.net/we6w> (Enjoying Ham Radio every day.)

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Date: Fri, 10 Jul 1998 15:57:17 -0600 (MDT)  
From: James P Rybak <jrybak@mesa7.mesa.colorado.edu>  
To: qrp-1@Lehigh.EDU  
Subject: [14856] Wilderness Radio's SST Xcvr???  
Message-ID: <Pine.OSF.3.91.980710155506.5794A-100000@mesa7.mesa.colorado.edu>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII

I'd like to hear some comments concerning Wilderness Radio's SST xcvr.  
I'm particularly interested in hearing what people think of the receiver.

Thanks.

Jim Rybak W0KSD

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Date: Fri, 10 Jul 1998 17:54:41 -0500 (CDT)  
From: ac5ez@webtv.net (Larry B)  
To: qrp-1@Lehigh.EDU  
Subject: [14857] Packing material  
Message-ID: <12365-35A69BB1-126@mailtod-121.bryant.webtv.net>  
Content-Type: Text/Plain; Charset=US-ASCII  
Content-Transfer-Encoding: 7Bit  
MIME-Version: 1.0 (WebTV)

Has anyone ever used pop corn as a packing material? Does it work well?  
This is a serious question, guys, really.

Larry Ac5ez  
Qcwa

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Date: Fri, 10 Jul 1998 17:56:26 -0500  
From: "Richard Bauer" <K5RB@worldnet.att.net>  
To: <qrp-1@Lehigh.EDU>  
Subject: [14858] QRP help  
Message-ID: <19980710225848.EKWP1714@RichardBauer>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=ISO-8859-1  
Content-Transfer-Encoding: 7bit

HELP, !!!!!!! Have received over 350 messages , when do u get time to read  
this es still have time to get on the air or ?. Tnx. somebody. 73 Rich.

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End of QRP-L Digest 1148

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